JAN 15 1923

Successful Practices in a Kentucky Mine Described on Pages 45-48

COAL AGE

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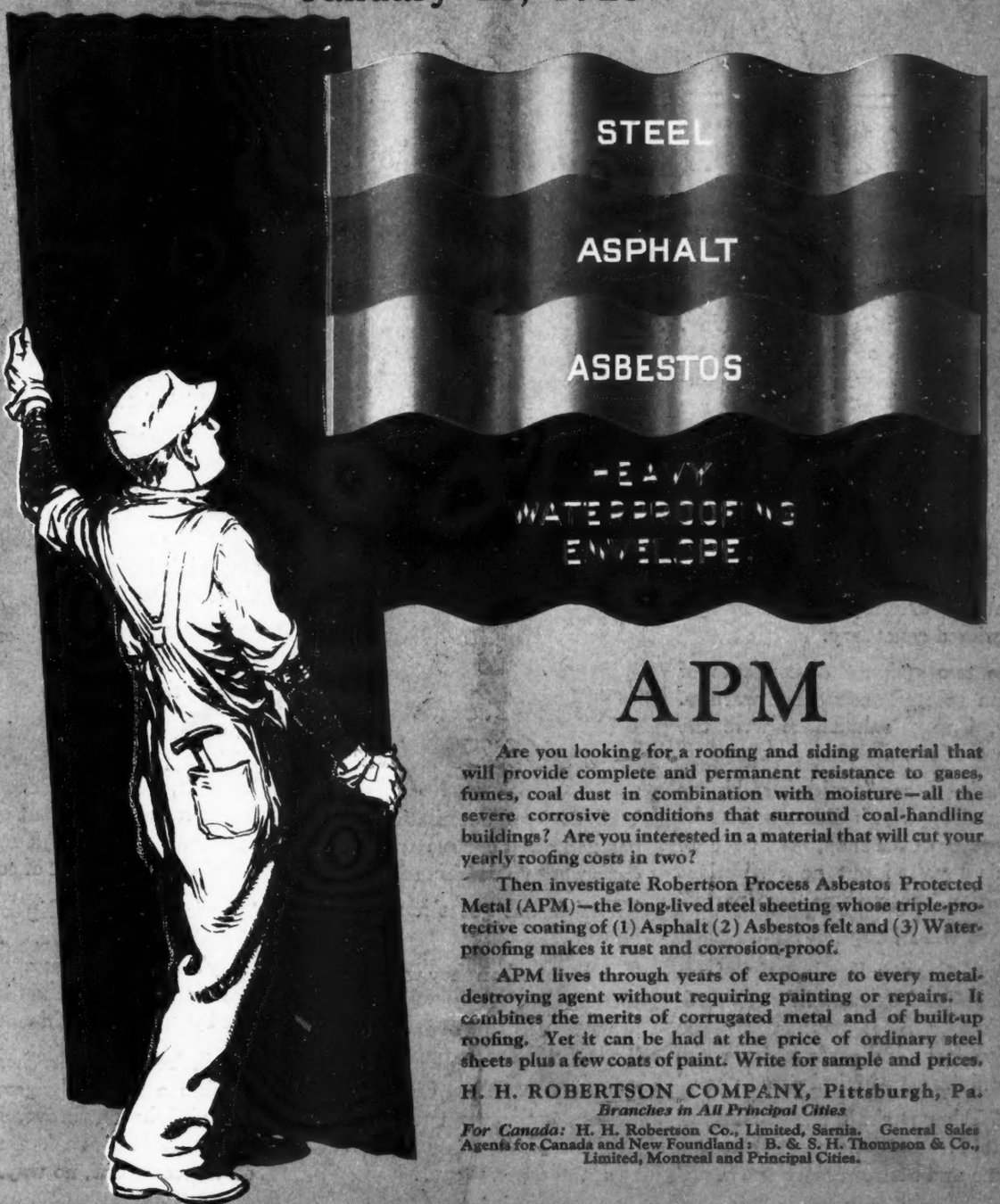

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Mistah G.W. Sunday to the fore

Mr. George Washington Sunday, repairman extraordinary, had just completed his somewhat easy afternoon labors of reflooring an old car and replacing a broken link in its hitching.

Mr. Victorius Uppus, coal loader of the first water and staunch admirer of the repairman, was wending his dusky way homeward by a route that carried him past Mr. Sunday's begrimed sanctuary.

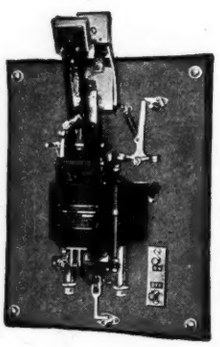
The two eminent descendents of Ham greeted each other warmly. Mr. Uppus' salutations were the more effusive.

"Peahs t' me," said Mr. Uppus after dropping his dinner pail in the doorway of the shop, "lak yo' don' picked yo'self out no onniferious position 'round these yeah parts."

"Says which, Big Boy?"

"Says, Brother Sunday, that from existin' and extenuatin' prognosticashuns, yo' is minglin' wid de Elite 'round dis plant from the standp'int of Capital and Labor."

"Ah'll have to 'mit, Brother Uppus, that Hard Work ain't had my name and address, since the 'Boss' 'stalled them automatic breakers back in yo' all little workings, if dat's what yo' is 'sinuatin'."



The Circuit Breaker with Brains

"Wha' is dat got t' do wit' you, Niggah?"

"Time was when they was a heap o' work in dis shop, but Ah ain't seen a motor, locomotive or machine 'bout heah for months. Jes' an occasional ol' car, tha's all."

"Reckon them automatics keep 'Bill,' the 'lectrician, busy, though" ruminated Mr. Uppus.

"Tha's where yo' is off agin, Brother Uppus," corrected Mr. Sunday. "Ah heerd him tellin' the 'Supah' jes' the other day that he ain't had to buy nothin' for a single one o' the eight breakers since they was put in ovah two years ago, 'ceptin' a few carbon tips. Dey suttinly works slick, and they ain't layin' up in the shop no time, no way."

"Mistah Uppus, there is one instrumen' that is built rugged and it ain't nothin' but that."

"Yo' speaks words of wisdom and fo'sight 'parently. Come to think 'bout it, Ah pass th'ee of them breakers on my way out every day, and can't say that Ah recall evah seein' one o' dem out of service."

"Couse you ain't, Big Boy. The 'Supah' is 'servative. Ain't nobody's fool—that guy. He don't buy nothin' less it has been tried out by some o' his friends fust."

"Well, 'scuse me Brother Sunday. Ah has a triflin' 'gagement with Mistah Johnson dis eve. Las' night Ah couldn't make 'em roll seben on the come out, no way."

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COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, Editor

Volume 23 NEW YORK, THURSDAY, JANUARY 11, 1923 Number 2

Coal Commission Goes Beyond Fact Finding

LAST week was important in the annals of labor history in the bituminous-coal industry. In the Chicago conferences between the United Mine Workers and the operators from all organized bituminous-coal fields three outstanding positions were taken by three strong groups. The outcome of three days' deliberation was the apparent elimination of two of the three.

The conference, it should be understood, was the preliminary round to the negotiations for a scale and contract to cover the period beginning April next. It was concerned with a decision as to how the two parties were to come together for negotiations. The old Central Competitive Field supposedly was scuttled last August in the settlement of the 1922 strike, when a mixed group of small proportions—operators from scattered fields—signed the contract dictated by the union. With the outward semblance of reorganization after the rout of last summer, the operators entered the Chicago conference on Jan. 3 with agreement on one program—district settlements, the battle cry of 1922. When the expected resistance and outright refusal of the miners was again manifested, the operators divided. The plain, unvarnished district plan was buried.

As of old, the operators divided as between the old Central Field and the "outliers." Those who throughout the past have been without the fold, who have never been permitted to enter the council chambers of the "Big Four"—Illinois, Indiana, Ohio and Pittsburgh—fought, and fought hard, for the initiation of a new day—for a national wage policy for the bituminous-coal industry.

Conservatism of the old, old school triumphed over the new thought—for a national wage policy is a new thought for the operators. In our present state of knowledge and experience it is the only way in which there can be district settlements. But with both rejected, and apparently decisively, there remains only the old base for wage making—the Central Competitive Field. Fifteen districts—"diversity of interest and divergence of opinion"—proved too much for a majority of the operators.

The situation is far from hopeless. It is in fact quite hopeful. Of the constituent parts of that historic group it is clear that eastern Ohio, Illinois and Indiana are strongly in favor of a settlement on the old basis. Pittsburgh and southern Ohio are holding aloof, giving as one reason their fear of the pending indictments of 1921 that hold them in violation of the Sherman law for such interstate contracts as are again proposed and contemplated.

Undoubtedly the interjection of the Coal Commission into the situation has had its effect. The country at large will approve, for the country does not want a strike. The commission has gone beyond fact finding when it suggests and urges as a basis for settlement the preservation of the status quo for another year. The commission has, to all appearances, a firm hand on the wheel, and even if it be not the precise wheel that Congress designated it is one that the public expected the commission to grasp.

Opinions may differ as to the advisability of the specific action taken by Mr. Hammond and his associates, but all will concede that if, as now appears at least likely, there be no strike, then a measure of credit belongs to those who dared step into a situation that has singed those in Washington who heretofore have come to grasp with it.

The Public's Own Doing

WHEN the mines work irregularly it usually is because the public does not buy. This is trying to the operator, but he makes no complaint. He has been in the habit of buying material when he pleased, and in common justice he cannot condemn the coal buyer for doing the same.

But when charged with the irregular time of the mine worker, who, in contradistinction to the mine owner, loudly and vigorously complains, the operator does feel he is justified in resentment, for he realizes that it is an attempt on the part of the public to blame him for its own misdoings. The great mass of the people complacently directs its way without a thought of the common interest and then is angered that certain individuals producing public necessities have not victimized and penalized themselves to take care of those people who have been indifferent both to their own and the community advantage. If the average consumer of coal would give a few minutes to introspection he would realize that he himself and not the operator is to blame for irregularities in production. If he persists in pursuing his irregular way, buying when he will, then he should cease to upbraid the operator for pursuing a like path and working his mines at his own pleasure and convenience.

These are platitudes, of course, but the public sometimes find them inconvenient and consequently not so obvious as they might be if they told a different kind of story.

Europe at Work

EUROPE generally is pictured as being in such a bad way that one is somewhat surprised to note the activity abroad in coal. The rate of production and consumption of coal is an index of industrial activity in Europe as it is here. Since the middle of July the weekly rate of coal production in Great Britain has been consistently above that of 1920 and 1921. For four months the rate has been above 5,000,000 gross tons per week and in December it passed 5,500,000 tons. Demand for British coal is heavy from all the foreign markets—South America, Continental Europe

and the widely scattered coaling stations. Prices are not so sensitive as here and have climbed but slowly, being now but little above the low point of last year. The mine workers, operating under the sliding scale of wages put into effect following the strike of 1921, are receiving the minimum rate. Wages in December were based on October returns. Early next year they will derive the benefit from the better trade of last month.

In France the coal demand is active. Home collieries are working at a better rate than for many months. Reparation coals from Germany, imports from England and Belgium are in demand. Coal for coking—a sign of industrial activity—and gas coals are in particular demand. In Germany the rate of coal production in the Ruhr has been pushed up to pre-war levels through overtime shifts and increased man power. The Silesian fields are working at a high rate of speed, largely to meet the requirements of the German market.

Europe is sick indeed fiscally but quite convalescent industrially. The Secretary of Commerce last week said: "In the large view the world has made distinct economic progress during the past year and the conditions are very favorable to continued progress during 1923. There are in exception three or four states in Europe which give continued anxiety, but these exceptions should not obscure the profound forces of progress elsewhere over the whole world. In the main even in these areas of uncertainty the difficulties are to a large degree fiscal and political rather than commercial and industrial."

Restraining Prices and Equalizing Distribution

REVIEWS of the stirring events which centered in and around the coal industry during 1922 are beginning to appear. When the large consumers of coal get around to chronicling a retrospect of the situation during that year from their viewpoint, there is reason to believe that they will feature the accomplishments of the administration in restraining prices and effecting equitable distribution of such coal as was available. The public utilities and the large consumers are thought to have been particularly pleased by the manner in which these things were accomplished. It was done without resorting to mailed-fist methods. Co-operation to an extent believed impossible in peace times was obtained. It is believed that many consumers will take advantage of the ending of the year to voice a high regard for the achievements of the administration in this particular. It is always true that commendation of this character in no way keeps pace with the flood of destructive criticism.

In this connection it will be pointed out that in spite of a much worse situation in 1922, the disturbance in the coal market and in distribution was nothing like as great as during and following the 1919 strike. In 1920 563,000,000 tons of bituminous coal was produced and distributed. In 1922 the production of bituminous coal was 415,000,000 tons. Moreover, to this great decrease in production of 148,000,000 tons must be added a great shortage in anthracite. In spite of this, 1920 coal prices averaged more than 600 per cent higher than the average for 1913. Even during the peak, in August and September, prices in 1922 were only some 400 per cent greater than the 1913 average.

Economical Humidification

VERY interesting was the suggestion of J. W. Paul at the Coal Mining Institute of America that it might be possible to economize in the humidification of mines by steam by passing the air through old workings, thus effecting the necessary heating of the ventilating current without using for that purpose the heat in the steam, to which would be left only the work of bringing the heated current of air to the saturation point.

Yet it might seem that the project is not without difficulty. Unless the workings through which the current is passed are so wet that the air could not possibly dry them up, the effect of passing low-temperature air unhumidified through such air passages would be to dry them and the dust in them so greatly as to create a hazard.

It is true, humidification at the end of the passages doubtless would put a moist barrier between them and the active workings such as an explosion would fail to cross. In fact with the active workings well moistened, as Mr. Paul suggested, the explosion, unless one of gas, could not be originated. This doubtless he assumed, for otherwise he could not well have advanced his proposition.

Assuming, then, that no fear need be felt that an explosion can spread over the area devoted to the preliminary air treatment, other difficulties yet have to be met. If the point chosen for humidification is far from the main entry it might be difficult to provide coal to a boiler at that spot. The location might be unfavorable also by reason of depth. Taking a steam pipe down a deep borehole would result in much condensation.

However, if with this plan the point of humidification is nevertheless not far from the mine entrance or is at some point remote from it where the cover is light or where artificial cover is provided to resist the entry of outside air, then except for the preheating of the current it would be better to take in air at the point where the humidification is provided. To pass the air through several thousands of feet of roadways would be unnecessary and a prodigal waste of ventilating power. It must not be forgotten that such airways have to be maintained and that this would involve no slight expenditure. It would seem better to take in air, even ice-cold air, and heat it with steam than to drag it through thousands of feet of roadway needlessly.

Mr. Paul said nothing about the possibility in flat seams of flooding the airways in which the current was being warmed and thus partly at least humidifying as well as heating the air in the process. Unfortunately this would make it necessary to have a longer stretch of airway, for air below zero would freeze the water in the roadways and so put a layer of non-conductive ice between the warm coal measures and the entering air. In consequence the current would be heated satisfactorily only in those sections beyond the icy belt.

It might be wished that Mr. Paul had gone more deeply into the relation between the heat gains and friction losses of such entering air. The suggestion opens up opportunities for thought, but without pretending to have made the extensive calculations the problem merits it is safe to say that it is a plan not without many counterbalancing drawbacks to offset its apparent advantages.

Ideas That Prove Profitable To Columbus Mining Co. May Fit Your Conditions

Short Rooms Lower Costs — Nine-Position Cutter Chains Save Power—No. 2 Cable Displaces No. 3—Knife Switch Stops Button Conveyor When Unsheaved —Car Retarder Lands Cars at Rotary Dump

By A. F. Brosky*
Pittsburgh, Pa.

ALL three of the workable seams, Nos. 4, 6 and 7, of the Hazard (Perry County) field in Kentucky are being mined by the Columbus Mining Co. It is one of the few concerns in that field working all the seams of operable thickness. The company has four mines, Nos. 3, 4, 5 and 6. They all lie close to Hazard, which town is a sort of nucleus for the plants in the Hazard field. The capacity of these mines aggregates 50,000 tons monthly.

No. 5 mine is in No. 6 and No. 7 seams. The other mines are in No. 4 seam, the thickness of which at these plants varies from 38 to 46 in. Under this seam is a shale measure known as the "jack rock" which is from 8 to 14 in. thick. This is underlaid, fortunately, by 2 to 5 in. of coal in which holes readily can be drilled when the bottom is to be lifted to make height for mine cars. If it were not for the thin bed of coal the bottom rock could not be removed with economy. In rooms and entries this jack rock is removed to a width of 6 ft.

The small band of coal, of course, is not loaded out but gobbed with the shale. Above the jack rock the seam is clean and free of partings. The roof of this bed in most places is of sandstone but in some places it is of slate.

Room-Widths and Pillars Made to Suit Roof

In the Hazard field many divergences are found as to width of rooms and pillars and as to the length of the rooms. These differences are found not only for different seams but often for the same seam. Though some of these variations may be explained by personal preferences, in many instances the differences are due to sound considerations as to the best method of working.

In seam No. 4, which is thin, the Columbus Mining Co. drives wide but short rooms and maintains wide pillars, these latter being roughly twice as wide as the rooms. The rooms, which when completed are 175 ft. long, are driven 22 ft. wide on 60-ft. centers, giving a width of pillar of 38 ft. By driving the working places wide plenty of space is left for the stowing of the lifted rock and more coal can be obtained from each room, thus concentrating the area under operation. Of course, no such width could be carried except under sound roof such as is found in these mines. In thicker coal the need for a wide room would not be so apparent, as no rock would have to be stowed and the tonnage in each place would be greater for any given width of working face.

Most mines working the Hazard No. 4 seam adopt a greater room length than is provided at these operations of the Columbus Mining Co. It is, therefore, interesting to note that in Mine No. 5, where two seams are operated, Nos. 6 and 7, the rooms are made even shorter, being only 150 ft. long. This company long ago ceased driving long rooms and for good reasons.

Why Rooms Are Made Unusually Short

By shortening the rooms the length of temporary track to be maintained is diminished without appreciably affecting the permanent trackage. Room track always is roughly laid and that difficulty probably will never be entirely eliminated. The shorter the haul on this temporary track the less will be the chances of derailments. Moreover, the less room track, the smaller the investment in track equipment. The trackage in rooms consumes much steel, and it is well to keep it down to a minimum.

Furthermore, with short rooms the gathering motors can handle larger tonnages per shift and if the cable-reel type of locomotive is used for haulage less cable has to be reeled and unreeled, less weight of cable has to be carried and a smaller reel can be used. The cutting machines also have shorter distances to travel to and from the face and they also require less cable. Not only is time saved in the reeling of cable by having short rooms but a short cable is more easily handled and is less likely to be injured than a long one. The cost of replacement of cable is reduced out of all proportion to the diminished length and the reduced voltage drop with a short cable, though small, perhaps, is worth considering.

The shorter the room the less roof left unsupported. As the area deprived of support is reduced, less timbering per square foot of unsupported area need be provided. Should a squeeze occur, only the smaller area is affected and the ill effects are soon stopped. Thus it

*Bituminous coal editor, *Coal Age*.

Note—Headpiece shows tipple, conveyor shed and supply track at mine No. 5 of Columbus Mining Co., at Allais, Ky. Note the dip in the conveyor, a condition almost beyond elimination but one which favors the jumping of the button conveyor from the sheaves on which it is stretched.

FIG. 1.

Hazard No. 4 Seam

Note the hard "jack rock," which cannot be feazed with an ordinary drill but which, being underlaid by a thin sheet of coal, can be readily drilled under and shot. Much of this material is gobbed in the rooms.

is that, though with short rooms more butt entries must be driven for any given output of coal and more track must be laid down and pulled up, the countervailing advantages may more than compensate for doing away with the long room. This is acknowledged and has been for years. Otherwise rooms would tend with experience and consideration to become longer, which by no means has been true.

In the recovery of coal from any mine there always is an appropriate ratio between the first-mined tonnage and retreat tonnage. What this ratio shall be depends entirely upon local conditions. Certainly it is cheaper to take as little as possible in the first mining, but this often makes expensive and more laborious the recovery of pillars. Driving shorter rooms and more room entries decreases the area taken in first mining, advantages warrant the change.

At this mine entries are driven 15 ft. wide to provide gob space for the bottom taken up in them. The mine is laid out in panels with the main entries on 50-ft. centers and the cross entries and room entries on 40-ft. centers. Cross entries are at intervals of only 800 ft. Barrier pillars, which are 150 ft. wide, are left on either side of the mains, which in every case consist of two haulageways and two air courses.

Upper Seam Slid Down to Lower in Chute

At Allais, Ky., all three seams of coal are worked. The coal from the Hazard No. 4 seam is dumped and prepared on its own tipple. Above, with an interval of 265 ft., lies the Hazard No. 6 seam, and 65 ft. above that the Hazard No. 7 seam. Coal from the upper opening, because of its extreme hardness, is dropped down in a chute, with little breakage, to the level of the Hazard No. 6 seam, where it is discharged from a feeder pan to the rope-and-button conveyor which handles also the coal from the intermediate seam.

The middle seam, Hazard No. 6, which runs from 7 to 8 ft. thick, also is worked on the room-and-pillar system. The mains on the two-entry system are driven from these and a 150-ft. barrier pillar is left on either side. The entries are made 11 ft. wide on 40-ft. centers. The entries are provided with a thinner chain pillar than in Hazard No. 4, as the cover is not as heavy. The rooms are mined 20 ft. wide on 50-ft. centers. Because of the small interval between Hazard Nos. 6 and 7 and because of the weakness of the sandstone, as is evidenced by the drumming sound it sometimes emits when struck, care is taken in working No. 6 not to drive places or pull pillars in advance of workings in the upper seam.

Until a year ago the same room-and-pillar system was used in both seams, but now the new workings in the upper seam are laid out on modifications of the "Elkhorn" system. Little space will be used here to go into details of this scheme of mining, for at a later date other mines will be described in which the true "Elkhorn" plan and its modifications will be explained.

Big and Small Room Pillars Alternate

It may be said briefly, however, that in the upper seam of No. 5 mine the entries are driven 10 ft. wide on 40-ft. centers and a barrier pillar is left on either side 100 ft. wide. The smaller pillars well suffice to sustain the lesser loads resultant on lighter cover. The rooms are driven systematically as follows: Two 16-ft. rooms on 29-ft. centers are succeeded by two 16-ft. rooms on 80-ft. centers. Their length usually is 150 ft., but in the irregular coal areas characteristic of seams outcropping high above stream level these may be increased near the crop so as to complete the work of mining some outstanding coal area. Rooms are driven off both room entries. In the pillar drawing, which is on the advance, a wide and an adjoining narrow pillar are brought back as one unit.

In a later story the merits of the system with alternate wide and narrow pillars will be detailed. Experience has revealed to this company that the system provides an almost absolute control of roof action and a greater flexibility of mining—that is to say, in robbing the wide pillar, crosscuts may be driven through it and the portions of the pillar thus cut off mined as desired.

In No. 5 mine three men load from one pillar set which, as stated, consists of a wide and a narrow rib. Eight cars may be spotted for loading at one time in the cuts of the wide pillar but only one can be placed for the loading of the narrow pillar. Two men load their first car from the former while the third man loads his from the latter. Then this third man loads his second and third cars from the wide pillar, working with the first two men. It is evident that as a result the coal operations are concentrated so that fewer gathering motors are needed for any given tonnage.

In all three seams of these mines shortwall mining machines are used. Each 6½ ft. cutter bar has a nine-position cutter chain, power being conveyed to the machines through a No. 2 all-rubber cable. These features are maintained as standard by the company.

Much may be said in favor of the nine-position cutter

chain, and the argument is sustained not only by reasoning but by a period of experimentation. The greater the number of bit positions the more complete the cutting action of the cutter chain. The paths of adjoining bits with a nine-position cutter chain leave little or no clearance between them, so that no ridges are left between the channels to increase the rubbing surface and add to the friction. Breaking off these ridges and working along their flanks is the cause of much unnecessary friction and loss of power.

Though no power readings have been taken to ascertain the current saved, the physical manifestations in cutting clearly point to that saving, for the machine cuts more easily, as is proved amply by the decreased tension in the feed ropes.

All cables used on shortwall machines in these mines are of the concentric, all-rubber type. The size in general use for this particular class of cutting machine is a No. 3, but the Columbus Mining Co. contends that this size is too small and that a No. 2 cable should be preferred. The Elkhorn division of the Consolidation Coal Co. is in full sympathy with this point of view. It recommends using a size larger than will carry ordinary machine loads.

The Columbus Mining Co. has tried the No. 3 cable in its mines long enough to conclude that a No. 2 cable is more desirable. The smaller size deteriorates rapidly on this machine, so that after short service it is prone to break down. The copper area in the smaller cable is too small to carry the excessive power needed when a piece of hard cutting is encountered. It may serve the purpose for a while but not for any long period of time. The excess heat generated under the rubber cover is not dissipated, and the cable is likely to burst asunder. The voltage drop from the feeder to the machine when No. 2 cable is used is less than that with the smaller cable.

Use Many-Position Cutters and Big Cable

The two changes described, the nine-position cutter chain and the large cable, cause the machine to work with greater facility, and more places are cut in a shift. The more generous cutting surface of the chain removes much of the wrack and strain on the pinions, bevels and other gears. The result of these two precautions is to diminish the heating of the motors and increase the cutting efficiency correspondingly. With the usual shortwall equipment, in the No. 7 seam of the No. 5 mine of the Columbus Mining Co., the best record was ten to twelve places per shift. Under the same conditions and in the same mine, with the alterations noted, the machine will cut fifteen to eighteen places per shift; hence the capacity of the machine is increased 33⅓ per cent.

The adjoining mine is equipped with four shortwall machines, two each of two different makes. Make No. 1 was equipped with a five-position cutter chain and make No. 2 with one of seven positions. The men preferred the latter machine because with it more places could be cut in a shift. Then the company removed the five-position chain from make No. 1 and put on one having nine positions. Thereafter the cutters showed preference for make No. 1, which proves conclusively that the change is beneficial.

The mine is equipped on the surface with a rope-and-button conveyor. This is provided with an electric knife switch which is in the circuit of the no-voltage release on the oil switch and which will break the circuit should the rope jump the sheaves. The device was originated by A. F. Barbieux, general superintendent of these mines.

Under certain conditions the rope conveyor is likely to jump from the idling or take-up sheave at the bottom of the hill. It happens that the conveyor line curves downward between the headhouse and the tipple, and the rope, accordingly, is left slack so as to fit the curve. This frequently has to be arranged in designing a conveyor line, as the level at which the conveyor is brought into the tipple is rarely at the same height as the regular hill slope at that point and therefore the slope of the conveyor must be eased up at its end. During a chilly night the conveyor buttons may be frosted to the trough and, until the finger of the motor control has turned to the fourth or fifth point, may refuse to start up for the day's run. The rope then starts with a jerk, takes up the slack suddenly and may whip the rope off the idling sheave.

Even when the conveyor is started in warm weather the rope may jump from the sheaves if there is a load in the conveyor trough, for the conveyor may refuse to budge until more than three units of resistance have been cut out. Throwing the motor handle still further, a heavier current passes through the motor and the rope then starts with a jerk. This lifts it above the level of the conveyor trough, only to fall again, coming in contact this time not with the metal sheeting of the trough but with the coal. This causes the takeup truck on which the lower idling sheave is mounted to move toward the hill, giving the rope play enough to clear the sheave. Though the rope has left the lower sheave, the motor continues to function and much damage may be done.

Only two of the reasons why the rope leaves the

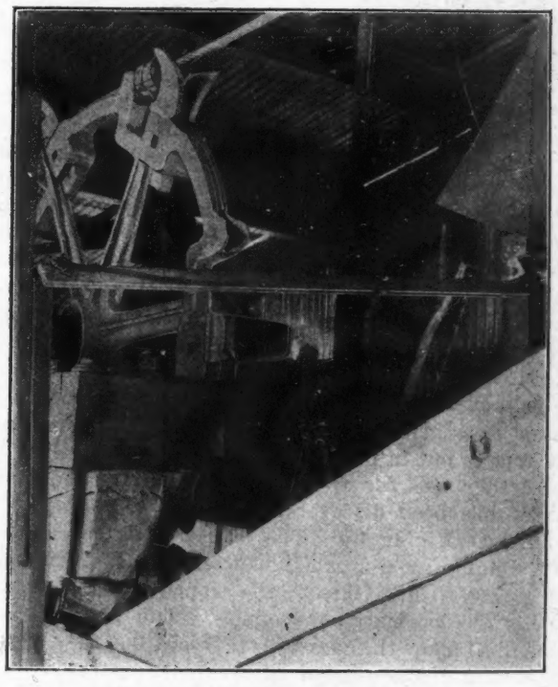


FIG. 2—KNIFE SWITCH AND IDLER SHEAVE

A two-wire conductor is taken down the conveyor gallery to the point shown. Here a knife switch is inserted. This switch is simply a board across which is carried one end of the circuit, the terminal of which rests against a knife plate, to which the other end of the circuit is attached. If the rope leaves the sheave the switch is knocked out, thus breaking the no-voltage release circuit. This trips the oil switch, stopping the motor. Note the wire-broom arrangement for cleaning the rope and buttons as they pass.

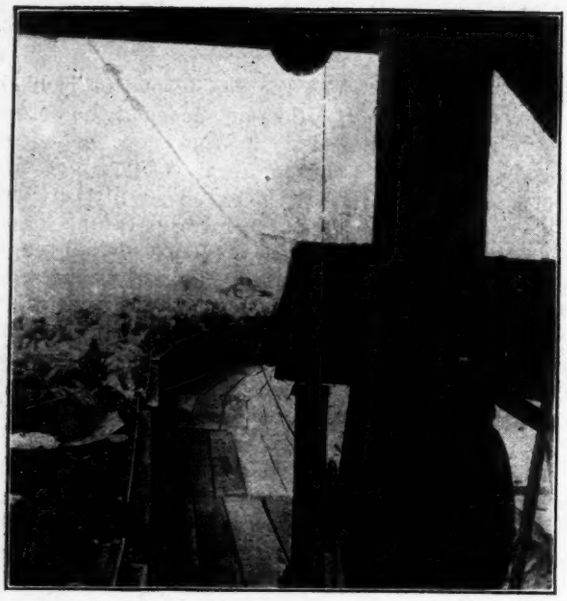


FIG. 3—RAILROAD-CAR RETARDER FEEDS MINE CARS

The gradient on the loaded track is such as to permit cars to gravitate freely to the dump. These cars are then controlled in their passage to the rotary dump by a railroad-car retarder which itself is regulated by the dump operative from his control platform. The cars, as is usual in Kentucky, are equipped with roller bearings. They have a capacity of 2½ tons. The angle-iron edges at the tops of the cars hold the wagons in place when revolved in the dump.

sheaves have been mentioned. There are others, however, and they do not occur always on starting, so to prevent damage a man would have to be stationed to watch the rope, for it comes loose at the sheave farthest removed from the motor control. To station a man for this purpose would be expensive, and no assurance could be placed on his keeping steadily on the job. Much damage might be done in the brief period before the motor is stopped.

The no-voltage release on the oil switch controlling the 25-hp. slip-ring motor by which the rope conveyor is driven is carried from the headhouse through the conveyor gallery to a point near the bottom idling sheave, which is supported on a takeup truck. At this point a large knife switch is inserted in the circuit. This knife switch is mounted between two upright supports, one on either side of the rope and at a height to allow the knife switch to lie horizontally a little higher than midway between the upper and lower course of the endless rope. If for any reason the rope jumps the sheave on the lower end, it drops down and breaks the circuit leading to the no-voltage release and the oil switch is tripped. The motor stops instantly and cannot be started again unless the rope is put in place and the knife switch reset.

Another use for the friction-drum railroad-car retarder has been discovered at the No. 4 mine of the Columbus Mining Co. The load side or the approach to the dump is on a grade sufficient to cause the loaded mine cars to gravitate to the tipple from the knuckle where the locomotive uncouples. The grade is steep enough to allow the cars to run freely, but they are held back by a friction-drum car retarder operated by the man who controls the rotary dump. The same man takes checks also.

The retarding rope passes over a ground sheave between the tipple and the knuckle point and the end is attached to as many cars as occupy the intervening distance to the rotary dump. When these cars are discharged the end of the rope has progressed to the dump. It is then uncoupled and carried back to the sheave and coupled up to another string of mine cars. One man can feed the cars, take the checks and dump as much as 1,000 tons of coal in eight hours. The crowning merit of this scheme of car feeding is that each car may be spotted accurately on the rotary dump by the dump operative, so that the procedure, while mechanical, has human intelligence controlling it.

What to Watch in Running a High-Lift Centrifugal Mine Pump

FROM A BRITISH CORRESPONDENT

AS A result of its compact design and adaptability to electric drive, the centrifugal pump has largely displaced older and more cumbersome designs. The types formerly used always were likely to give trouble underground, for the floor movements threw the different parts of the equipment out of alignment, thus causing hot bearings or fractured castings. Although the general theory of centrifugal pumps is well known, their practical operation has not received the attention its importance warrants. Especially is this true where the pump has to be operated under a high head, as in deep mines. The following notes apply more particularly to large units of this description, but much of that which makes for satisfactory operation in a large high-lift machine also applies to smaller installations.

It is well known to those acquainted with the practical operation of the centrifugal pump that unless both the casing and suction column of such a machine is fully primed—that is, completely full—it will not "catch" the water and begin pumping. Trouble from this source usually can be traced to a defective foot valve. Of all the valves connected with a pump, this one probably is the most important. Being of a non-return design, it allows the passage of water in one direction only, namely, toward the pump.

CONDITION OF FOOT VALVE MOST IMPORTANT

The condition of the foot valve is highly important, especially when priming the pump preparatory to starting. If the valve seat is defective, the water for priming leaks past it and into the sump. In most cases the quantity of water that the bypass makes available is limited and if the foot valve leaks badly the water runs away more rapidly than it can be supplied, so that it is impossible to fill either suction column or pump. Under exceptional circumstances the main valve on the delivery column may be slightly opened, but this should be done only in an emergency when it is imperative to start a pump to prevent the sump from overflowing.

It is difficult to begin pumping under such conditions and often the pump may have to be started several times before it will catch water. This continual restarting throws much unnecessary wear and tear on the controlling apparatus. A fruitful cause of a pump's failing to catch water is too rapid priming. A high-lift machine necessarily is built with several stages, and the cavities in which air may become trapped are numerous.

If by opening wide the bypass valve a large quantity of water is forced into the pump under the pressure of the discharge column, the air has little opportunity to escape, even assuming that the air cock upon each stage has been opened. The pump should be primed slowly. If the foot valve is in good order, little of the water remaining in the pump and suction column

when the machine was stopped will have leaked back into the sump. Under such circumstances the pump should need for starting only a small quantity of water. A foot valve, though normally subjected to only slight water pressure, should be designed to withstand the full head of the delivery column. Of course a check valve should be installed at the bottom of every column and immediately above the pump, so that as the machine slows down and the flow of water ceases this valve will close automatically and prevent the water in the column from running back through the pump and into the sump. Where a high head must be dealt with it sometimes is advisable to put two of these valves on the delivery column, thus providing against the failure of either.

If by accident or necessity the water column becomes empty, great care is necessary when starting. When a pump is working under its normal head, the quantity of water handled is restricted. If, on the other hand, the column is empty or only partly full, it offers little or no resistance and the pump will pass an abnormal quantity of water if the delivery valve is wide open. Consequently, when starting under such conditions, the delivery valve, after the pump has been brought up to speed, should be opened slowly, careful attention being given meanwhile to the ammeter reading, which should not be allowed to go above normal full load. As soon as the column is full, which will be indicated by the ammeter not exceeding the full load reading, the valve may with safety be opened to its fullest extent.

Dangers From Pump Running Short of Water

It is dangerous to allow a centrifugal pump to run more than a few minutes when full of water unless this is actually passing through the machine. The temperature under such circumstances rises rapidly, evaporation begins in a few minutes and the pump may be ruined soon unless brought to a standstill. While running this condition may be brought about by either of two contingencies; the water level in the sump may fall below the foot valve, thus depriving the pump of water, or an accumulation of refuse in the sump may, through the absence of a suitable screen, block the valve and thus prevent the water from reaching the pump. To forestall these possibilities safeguards should be provided on every pumping unit. A suitable float should be placed in the sump indicating within the pump room at all times the level of the water; at low water this should automatically shut down the pump motor. As an additional safeguard a watertight fire alarm should be fitted to the pump itself, so arranged as to cut off the motor current in the event of an undue rise in temperature.

The bearings of a centrifugal pump require constant supervision, because any journal running at, say, 1,500 r.p.m. develops trouble with extreme rapidity when once things begin to go wrong. Pump bearings, of course, become warm soon after starting, even though they are water-cooled. They should not be permitted to reach a high temperature, and anything over about 100 to 120 deg. F. should be treated seriously. A bearing developing this temperature should be opened and examined at the first opportunity.

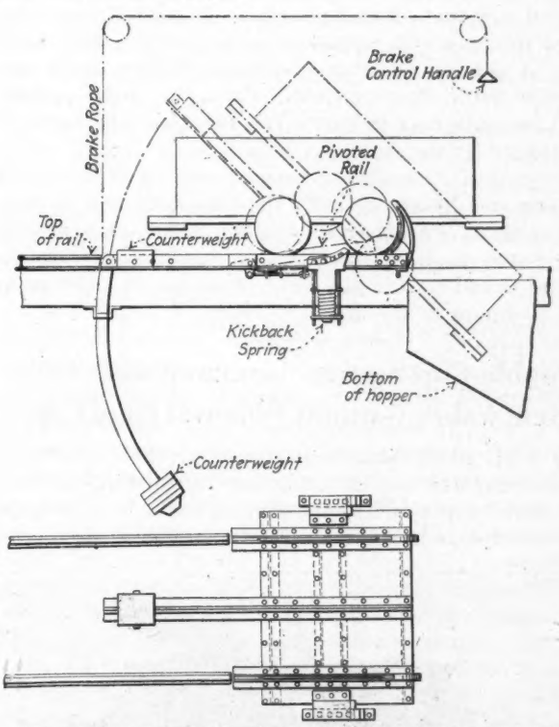
To obtain satisfactory life from bearings and freedom from overheating they must be supplied with suitable oil. Once having made a selection the same quality and grade should be habitually used except under unusual circumstances. Heavy oil should not be employed because of the difficulty in maintaining its free circulation through the bearings and journals, a failure in which results in overheating and excessive wear. On the other hand, use of an extremely light oil should be avoided, as it provides insufficient body between the bearing surfaces. Furthermore, when raised in temperature because of its low viscosity, abnormal quantities are carried into the bearings by the oil rings. This may result in splashing and leakage.

It is perhaps unwise to rely altogether on the pump attendant to keep a constant watch on the bearings. For this reason it is advisable to install a suitable fire alarm on each, working in conjunction with the one on the pump itself. All three may be arranged to interrupt the motor circuit in case of any excessive rise in temperature.

Dump That Ejects Empty from Platform

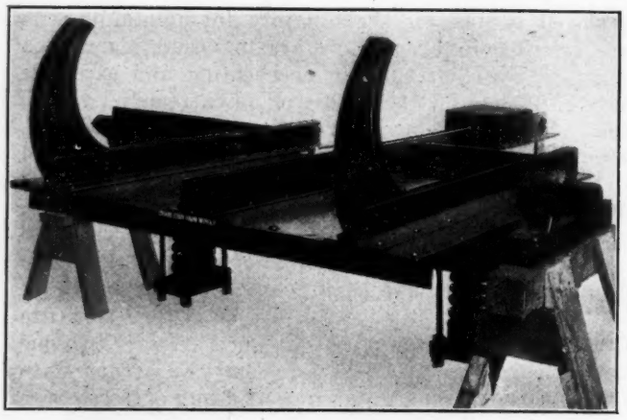
DUMPING, or the discharge of a car's contents, while admittedly a minor operation in coal producing, nevertheless is one of such importance that it often requires close attention. Many schemes and devices have been invented to accomplish the desired result. One of the latest of these is shown in the accompanying illustration.

This dump, which is of the kickback type, is designed to afford some of the advantages and speed of the crossover dump. As may be seen in the accompanying illustration, the device embodies a combination of tilting platform and tilting rail sections. The tilting rails are attached to steel springs, the tension of which is adjustable and may be made such that a loaded car will depress them whereas they will rise under the weight of the same car when empty.



DUMP WHICH RIDS ITSELF OF CAR WHEN EMPTY

"Kickback dumps" when they return the car to the horizontal give it little if any movement backwards. For this reason they are ill termed "kickbacks." They are so-called only because if they kick anyway they should kick back but they don't really kick at all, and the men who handle the car are relied on to move it to the nearby empty track. This dump has pivoted rails that the car before dumping depresses. After the car is dumped and righted the rails rise so that the coal rolls off the dump without the interposition of a hand.



DUMP SHOWING SPRINGS WHICH MOVE PIVOT RAILS

When the car comes on the dump the wheels force down the pivot rails which sink to the level of the rails on the dump platform. After the car is dumped it is too light to hold down the pivot rails and they spring up putting the car on a grade steep enough to hurry it off to the empty track where the grade, there provided, will take care of its further movement.

In operation when a car comes into this dump it depresses the tilting rails against the tension of the springs till the rails reach the level of the angle irons between which the tilting rails move. Here these rails are locked in their depressed position while the bed or platform, tilts upward to the dumping position of the car. The dump may be held in the up-tilted position as long as desired by means of a brake lever bearing against the sword bar which projects downward from the end of the dump arm.

When the sword is released, however, the dump returns to a horizontal position, upon attaining which the tilting rails are unlocked. The tension of the springs under the ends of these rails is sufficient to force them upward now that all that resists their upward movement is the weight of an empty car. Accordingly the car is given a decided impetus backward off the dump and through the kickback switch. From this point onward arrangements may be made for the free movement of the car under the action of gravity.

Because of its construction and method of operation it is claimed by the makers, the Charleroi Iron Works, of Charleroi, Pa., that this dump is not only strong, simple and positive in operation but that it permits greater speed in dumping and is not as destructive to cars as dumps of the ordinary type.

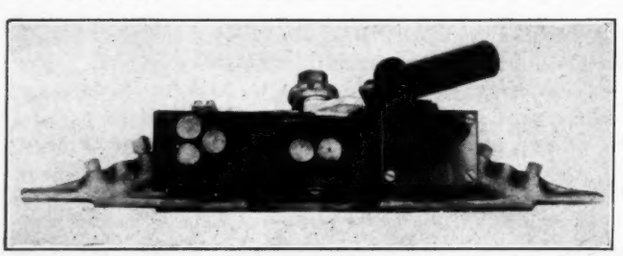
Double-Gap Section Insulator with Parts Renewable Without Removal from Line

AS THE electrification of coal mines has resulted in the construction of an extensive overhead network of charged wires and as the mining industry, like many others, employs in the main relatively unskilled laborers for the handling of these uncovered conductors, it is necessary to have a means of protecting these men while they are performing their duties. This protection usually is afforded by section insulators, the use of which in most states is required by law.

The Westinghouse Electric & Manufacturing Co. has developed a double-gap section insulator which meets all service conditions and also fulfills the requirements of the mining laws.

It is a double-beam insulator having two air gaps as insulating mediums and a hand-operated switch mounted on the top of the wooden beams. It is intended for use in mines where the operating voltage is 600 or less. The arcing tips, castings and approaches are made of bronze and can all be renewed without removing the insulator from the line. The switch contacts, on top of the end casting, also are renewable.

The two beams, one on each side of the arcing tips, leave a clear space above, and no trouble is caused from the arc charring the beam. This arrangement also has the advantage of giving a blowout effect on the arc when opening the switch under load. Another advantage which is especially appreciated in low mines is the small overhead room required.

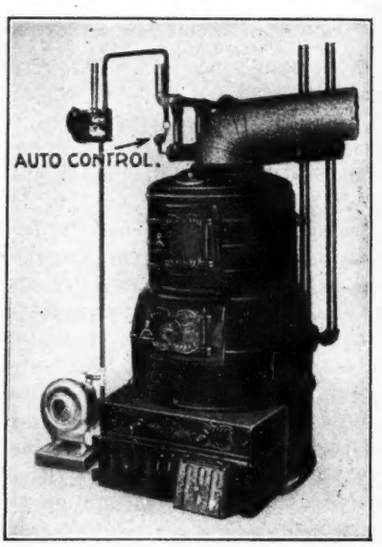


SECTION INSULATOR WITH TWO AIR GAPS AND SWITCH

The two beams, one on each side of the arcing tips leave a clear space above. Thus there is no charring, the arc tending to be blown out instantly when the switch is opened under load.

Grate for Domestic Use of Bird's-Eye Coal

SUFFICIENT effort seems hardly to have been made by producers to induce the domestic consumer to use fine sizes of anthracite. There are two parties interested in the sale of fine sizes, the producer and the consumer; the retailer is not affected much either way. The producer finds sale for an otherwise waste product and the consumer gets a coal that is delivered to him at a rate below the cost of product plus freight and handling. It will be interesting, therefore, to note that the New England Fuel & Supply Co., of 73 Water St., Boston, Mass., is prepared to supply a grate for burning Schuylkill bird's-eye (No. 2 and No. 3 buckwheat) with the necessary electric fan blower, electric control and cleaning tools. The grate is perforated with slots measuring $\frac{1}{8}$ x $\frac{1}{16}$ in. and is laid on the top of the grates already installed. The fan is of a special composition aluminum and has six to ten blades operating in a cast-iron case. The electric control cuts off the electric current when the temperature of the hot water on the heater or furnace pipes reaches the desired point and starts the fan going as soon as the temperature falls to another suitable level. When running the fan keeps the ashpit under a steady pressure.



BIRD'S-EYE MAY YET BE A DOMESTIC FUEL

By the use of a special grate, an electric fan blower with electric control bird's-eye coal can be used in connection with the ordinary household furnace.

Some Recent Developments in Scraper Loading Methods*

Scraper Used for Storage and Reclaiming of Coal on Surface—Self-Transporting Chute for Loading Cars Underground, with Equipment for Operating Scraper and Illuminating Face—Keeps Ropes off Heading

BY J. S. HOUSMAN
Chicago, Ill.

THOUGH mechanical loading has made much progress, the art still demands a close co-operation between operator and manufacturer. Much exceptional work has been and is being done both in mine and factory. In this article will be detailed the experience of the Goodman Manufacturing Co., of Chicago, Ill., in loading coal by mechanical means under widely varying mining conditions.

Mechanical loading may be said to divide itself into two principal classes: (1) That in which the material to be loaded is put into cars immediately at the point where it is loosened from its original location, and (2) where the material is transported a distance from its original place and put into cars by a scraper, conveyor or some other means. The first class may be termed that of face loading, the second that of entry loading.

It is with the scraper method of entry loading that this paper has to deal. This method was selected as the most desirable point of attack in the solution of the general loading problem because it seemed to require the simplest and least expensive form of apparatus and to be capable of great flexibility in operation.

The most usual form of scraper loader is so well known in the industry that it is unnecessary to give here more than the briefest description. It consists in principle of a bottomless scoop, or scraper, moved by a head rope and a tail rope and guided by sheaves and deflectors suitably located and actuated by a two-drum winding engine. A chute, or runway, is built at the outlet of each working place served, so that the scraper may deliver its load over the edge of the car.

*Article presented at annual meeting of Alabama Mining Institute, Birmingham, Ala.

As the winding engine usually is located in the entry and the scraper operates at the face, a signal system must be installed between them. The illustrations herewith make apparent the manner in which the scraper operates.

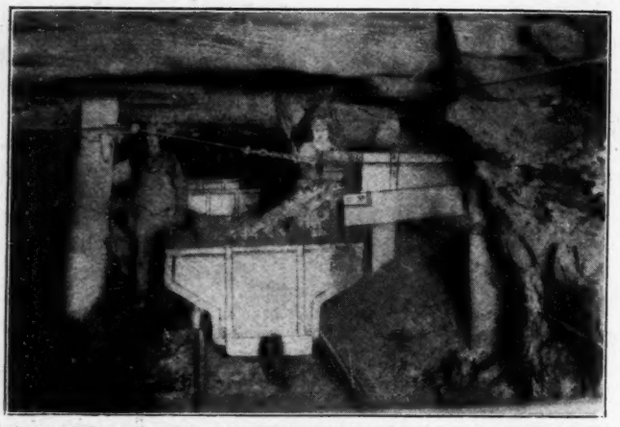
It has been ascertained by experience that a scraper loader of this type is best adapted to the following mining systems: (1) Longwall, either advancing or retreating; (2) panel work; (3) room and pillar, where wide faces, say 60 ft. wide or wider, are available; (4) pillar drawing, where the same general plan is used as in longwall work.

COST OF HAND AND SCRAPER LOADING COMPARED

Data have been procured showing the cost of mining and loading coal by hand and with the aid of the loader at various mines, each using some one of the foregoing systems. The method adopted for comparing hand with scraper loading is based upon the assumption that both start at the same point—that is, at the face which has been undercut and is ready to shoot. The governing factors for hand loading are as follows: (a) Loading rate per ton of coal, usually including drilling, shooting and powder; (b) yardage per ton of coal loaded.

The items for loading with the mechanical scraper loader are: Comparative mechanical scraper loader cost, including the following items: (a) Total labor; (b) powder; (c) power; (d) rope renewals; (e) miscellaneous repairs and supplies; (f) depreciation; (g) interest. The cost of building chutes and preparing places might be added but is paired against the saving in gathering and in track.

As typical installations of the equipment may be cited: First, a mine in West Virginia which has two



SCRAPER LOADER DISCHARGING COAL INTO MINE CAR
A chute is built on the entry to permit the scraper to get over the top of the car. This shows the condition where entry height has been made by taking down top. The chute is not moved till the place is worked out. With this arrangement cars can be loaded in full trips. As soon as one car is loaded another takes its place, something entirely unknown where the loading is done at the face.

scraper loaders in operation. The thickness of the coal seam in this mine varies from 24 to 28 in. The coal is covered with 4 in. of drawslate that comes down when the face is shot and is gobbed by the loader crew. The work is done on a 175-ft. face and the men load approximately 60 tons per day at a saving of 53c. per ton. The hand-loading costs are:

(a) Loading rate, per ton	$0.75
(b) Yardage, per ton	.45
Total, per ton	$1.20

The mechanical loading cost per ton is 67c.

Second, a room-and-pillar mine in Kentucky which has three of these loaders in operation, working a coal seam 40 in. thick which is overlaid with from 2 to 10 in. of drawslate that comes down with the coal. The room faces are about 50 ft. wide. During the month of July the scraper-loader coal was cut and loaded, the slate gobbed and the places timbered for 90c. per ton.

Third, a mine in West Virginia with coal 30 in. thick, working a 150-ft. longwall face. There are five men on the loader at a contract price of 40c. per ton, a saving over hand loading of 42c. per ton. The hand loading costs are:

(a) Loading, per ton	$0.70
(b) Yardage, per ton	.12
Total, per ton	$0.82

The illustrations indicate the possibilities of the loader in underground work. It also is being used successfully in surface work such as stockpiling and the loading of coal into railroad cars and trucks.

Some time ago a general manager of a coal company in West Virginia determined to put his coal into a stockpile when short of railroad cars. This plan not only would enable him to keep his mine in daily operation with a certain degree of independence of car supply but also would provide a reserve stock of coal that could be drawn upon at any time to take advantage of a rising market.

The natural conditions lent themselves readily to the general scheme. The drift opening of his mine was high up the side of a mountain, giving plenty of height for dumping and storage. The slope of the mountain caused the coal to flow readily down to the pathway of the scraper loader.

The loader he is using consists simply of a tandem two-drum winding engine and a scraper of one-ton capacity. The engine or hoist is placed at one side and near the foot of an inclined runway which he caused to be constructed between the tipple and the foot of the slope of the stockpile. Here the operator of the hoist has full view in both directions and can thus respond to any signals made to him from the tipple or the scraper loaders.

The scraper runway is built temporarily of planks, but is to be replaced by concrete. The incline to the tipple is 100 ft. long and has a pitch of 27 per cent. The scraper discharges into a bin in the tipple, where the coal may be loaded direct as mine-run or passed to the screens for sizing.

Two men operate the apparatus, one being at the winding engine and the other at the stockpile, where he can guide the scraper while loading. A letter from one of the men connected with the installation gives the following data:

"I have not as yet been able to run a full day on account of shortage of railroad cars, but the following will show some of the results obtained:

Date	Railroad Cars	Time
Aug. 1	3 (two of 55 tons one of 70 tons)	
Aug. 5	4 (all 55 tons)	
Aug. 10	3	5½ hr.
Aug. 14	3	4 hr.
Aug. 21	2	2½ hr.

I have loaded three 55-ton cars and one 70-ton car in 5½ hours and can load 300 tons in eight hours with two men to help me."

A later letter gives the following operating results:

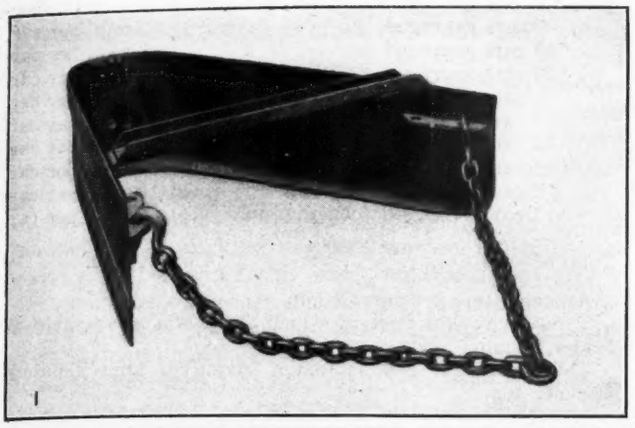
Date	Tonnage	Time
Sept. 4	150	3 hr. 26 min.
Sept. 6	165	3 hr.
Sept. 13	100	2 hr. 18 min.
Sept. 16	120	2 hr. 12 min.
Sept. 17	305	6 hr. 17 min.
Sept. 25	220	4 hr. 30 min.
Sept. 29	225	4 hr. 10 min.

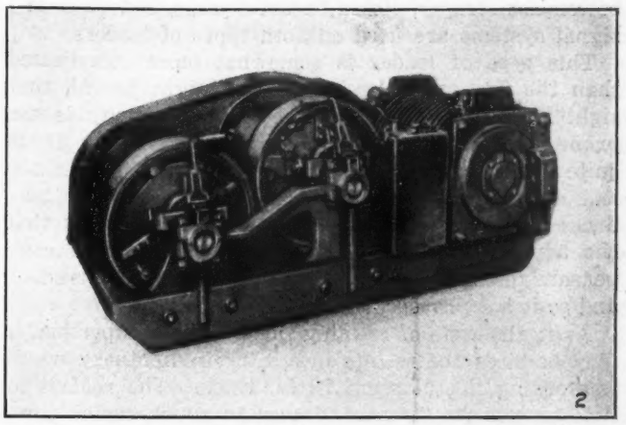
Storage as Essential as a Flywheel

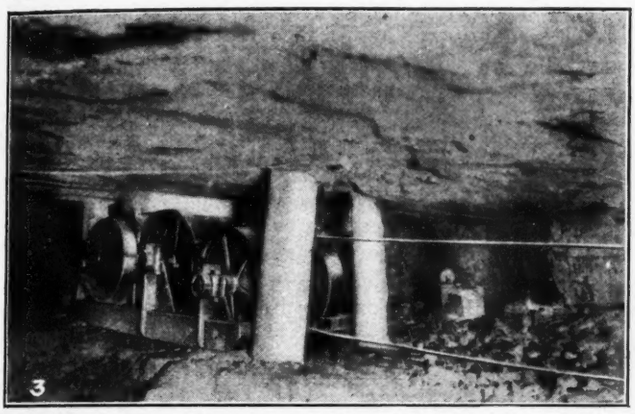
The advantages to be gained by an installation of this kind are: (1) Steady operation of the mine, affording all the economies of regular working, reduced overhead expense per ton produced, greater efficiency from men and machinery and improved mine conditions. (2) Better organization of men due to steady work. (3) Reserve stock for shipping on a rising market. (4) Maintenance of uniform daily shipments regardless of late delivery of cars. (5) Maintenance of uniform daily mine output, despite any delay in production due to trouble underground. (6) Increased allotment of railroad cars resultant on increased ability to load them quickly.

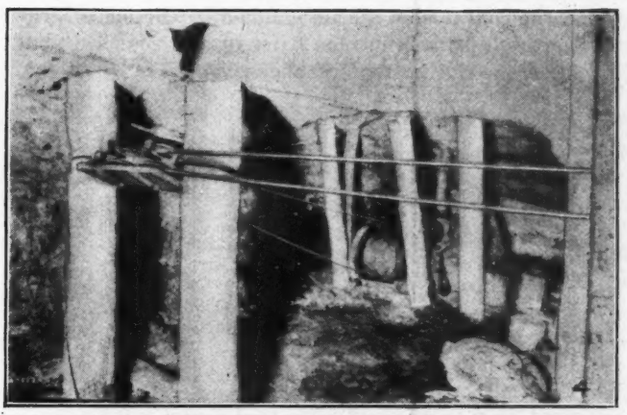
This method of operation is not confined to mountainous country alone, for at an operation in Kentucky the coal is dumped on the level, the loader apparatus doing both the stockpiling and car loading. This machine has handled 320 tons in 8 hours—that is, it has placed on a stockpile 195 tons and loaded 125 tons in trucks and wagon.

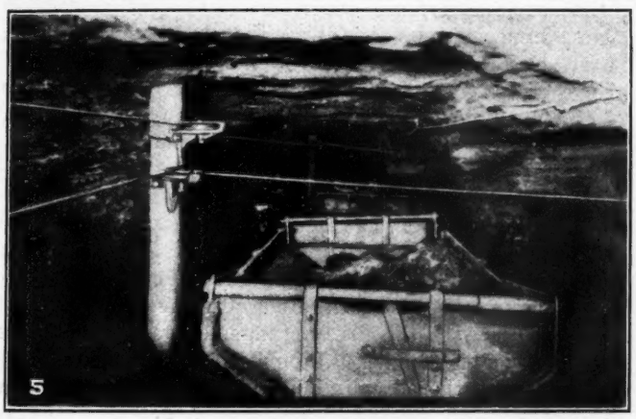
To obtain even greater flexibility and reduce the "dead work," or time required to maneuver the equipment about the mine, another type of scraper loader having the same functions as that described but which has further advantages has been devised. The same

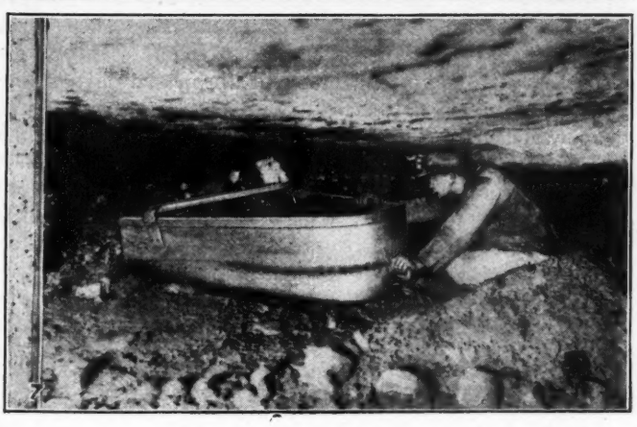


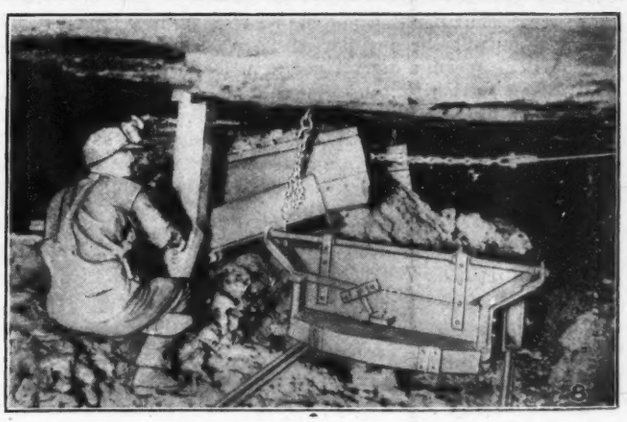












SCRAPER LOADER WITH STATIONARY HOIST SET IN HEA DING

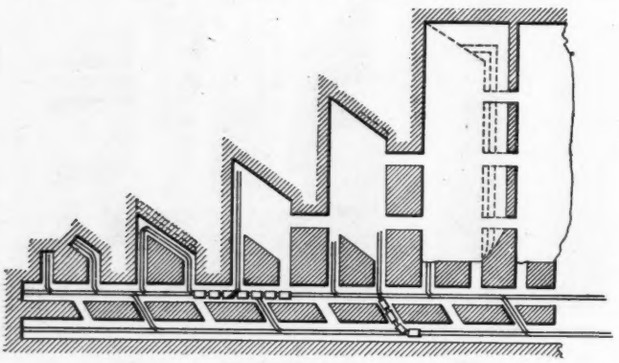
(1) Bottomless scraper 18 in. high with a capacity of 1,000 lb. The scraper is pulled into the coal by the chain shown and returned empty by a rope attached to the rear of the scraper. (2) This scraper hoist has a height of 27 in. and is equipped with a 35-hp. motor. (3) Winding engine on entry ready for scraping. It is held from moving forward by the two props in front and from tipping up by a piece of timber driven between the motor and the roof. Any comparatively level spot will serve. (4) Winding engine with center sheaves. (5) Ropes and post sheaves. The ropes lead from the center sheave to those in the foreground. The tail rope is the lower one. The pull rope can be seen crossing the entry further up. (6) Filling up a scraper with coal. The seam is 28 in. thick. (7) Scraper seen from behind. (8) Scraper discharging coal into car in a longwall mine. Here bottom is lifted in the roadway, and a mere apron serves to elevate the coal instead of a more lengthy dragging plane.

bottomless scraper, closed sheaves, jacks, deflectors and signal systems are used on both types of loaders.

This type of loader is somewhat more complicated than the first, and the impression might prevail that sight has been lost of the fact that simplicity is the prime requisite in scraper-loader apparatus. It is quite true that any combination of two or more mechanical devices interdependent in operation usually produces complication, yet in this case it was felt that the advantages to be derived would more than compensate for the problematical disadvantage referred to, and so it has proved in actual operation.

As to the costs of running this type of scraper loader may be cited the results in a mine in Kentucky which is working a coal seam 72 in. thick. The roof is of limestone above 7 in. of drawslate which comes down when the coal is shot and is handled by the loader crew.

There is also a 2-in. blue band in this coal bed about 24 in. from the bottom of the seam. This bottom is



ROOM-AND-PILLAR SYSTEM WITH DIAGONAL FACES

This plan shows how the diagonal faces finally can be squared up and the pillars worked away till only a narrow pillar remains between rooms.

of a very soft fireclay. The following data have been obtained from actual experience acquired in the operation of one of these machines over a period of a number of days:

Capacity of cars, tons	2
Total daily output of mine, tons	1,198
Daily output of loader, tons	72
Average time worked daily by loader, hr.	4.7
Average output per hour by loader, tons	15½
Average number hand loaders in mine	129
Average output per day per man hand loading, tons	8¾
Average output per day per man with loader, tons	18
Theoretical average output per man loader working full shift, tons	31
Hand loading rate per ton	$0.76
Cost per ton with loader	0.46
Actual saving per ton	0.30
Theoretical saving per ton on loader working full shift	0.50

A full shift log kept by the general superintendent of the mine shows that the total time from start to end of shift was 7 hr., 26 min. This time was divided as follows:

Loading cars	4 hr. 36 min.
Cleaning track	25 min.
Loader delay	38 min.
Pulling down coal	46 min.
Moving loader device	55 min.
Miscellaneous delays	10 min.
	7 hr. 26 min.

Total output from three 30-ft. places was 114 tons. The average lading per car was 1.7 tons.

2 cars averaged		1 min. per car
7 cars averaged		2 min. per car
19 cars averaged		3 min. per car
23 cars averaged		4 min. per car
5 cars averaged		5 min. per car
2 cars averaged		6 min. per car
3 cars averaged		7 min. per car
2 cars averaged		9 min. per car
2 cars averaged	(cleaning up places)	10 min. per car
1 car averaged	(cleaning up places)	15 min. per car
Total 66 cars		4 hr. 36 min.

Average time per car 4.2 min.

Total delay 172 min. of which there was chargeable to loader 38 min.

This particular run showed a saving of approximately 50c. per ton.

Another room-and-pillar mine in Kentucky is working a coal seam 40 in. high which has drawslate approximately 7 in. thick, that comes down when the coal is shot. The faces of the rooms are 40 ft. wide. A crew of four men gobs the drawslate and loads the coal for a contract price of 50c. per ton. The hand loading price is 81c. per ton.

This company also has a large acreage of slightly pitching coal which cannot be recovered profitably by hand, due to excessive yardage costs and the refusal of the miners to push the cars up the pitch without compensation. Both factors are problems eliminated by the use of the scraper loader.

Advantages of Locomotive Chute-Hoist

It is claimed from experience that scraper loaders can be operated successfully either by day work or on contract. The following are outstanding features of the scraper loader just described: (a) The hoist is self-propelling. (b) The chute is mounted over a hoist, thereby saving the cost of wooden chutes. (c) The system is flexible, because the hoist, being self-propelling and self-contained, is not tied up to a restricted area. (d) The operator is in position to see the scraper both when being loaded and when dumping into the cars, as the hoist is set in the room neck. (e) The equipment can be operated with one man less than is required with the first arrangement. (f) The rope at the face is sheaved automatically by the operator of the hoist, thereby eliminating the labor of sheaving the rope. (g) One less jack and sheave are used at the face and the center sheaves and all post sheaves on the entry also are eliminated. (h) No chute aprons are necessary; a complete chute and apron are part of the hoist. (i) It is not necessary to stop on the straight rib when coming out with the loaded scraper, production thereby being speeded up; this, of course, is due to the automatic rope-sheaving device. (j) Little work is necessary in making a new installation, as there is no need to build chutes nor set props for sheaves on the entry. (k) Speed is made in moving from place to place; thus at a mine in Pennsylvania a place was finished, the loader was moved and the scraper loader was operating in the next place within 15 minutes. (l) When ready to move to a new working place, the scraper and other accessories are pulled into the chute by the hoist, thereby reducing the manual labor of handling the scraper and accessories. (n) The scraper can be worked successfully in low coal on a 40-ft. face. (o) The room neck and switch are left open for the mining machine when the loader leaves.

The following advantages and savings may be

effected by any mechanical loader: (a) The haulage system is concentrated; in other words, the daily output of coal loaded mechanically will be obtained in from one to four places, depending upon the length of the face and whether the system in use is a longwall, panel or room-and-pillar working. (b) The locomotives travel less territory for the same quantity of coal due to the concentration, thereby reducing the haulage costs. (c) A new mine could confine all operations to one definite section; after working out this part of the mine, the same steel, ties and trolley wire could be moved over to the new working faces; this, because no such scattered territory as is required by hand loading is necessary with a mechanical loader. In other words, there is need for only about one-fourth the number of working places for the same tonnage, consequently the extra development is not necessary. It readily can be seen that the saving in steel, ties, trolley wire and maintenance would be considerable if this system were followed. (d) The concentration of the workings due to the use of the mechanical loader means higher efficiency from the cutting machine, as the time lost in moving from place to place would decrease. The time gained could be utilized in actual work, thereby increasing the tonnage profits from each piece of cutting apparatus, as the only time it is making money for the owner is when the machine runner's helper is shoveling bug dust. (e) Places are worked out faster, which is an advantage when a mine has a tender top. The greater the speed of working out the place, the less the time for the roof to give trouble. (f) The chance of having to pay compensation is reduced from a minimum of one in two to a maximum of one in five. This, of course, all depends on the increased tonnage per man at any particular installation, for the fewer the men the less chance of injury. (g) The tonnage per man has been increased in many cases from the familiar figures of from 4 to 10 tons per man per day in hand loading to from 20 to 25 tons per man per day with the mechanical loader. (h) The decrease in the number of men for a given production also means that the present equipment of miners' houses and other facilities will serve for a large percentage of increase of output.

Where Scraper Has Advantages of Its Own

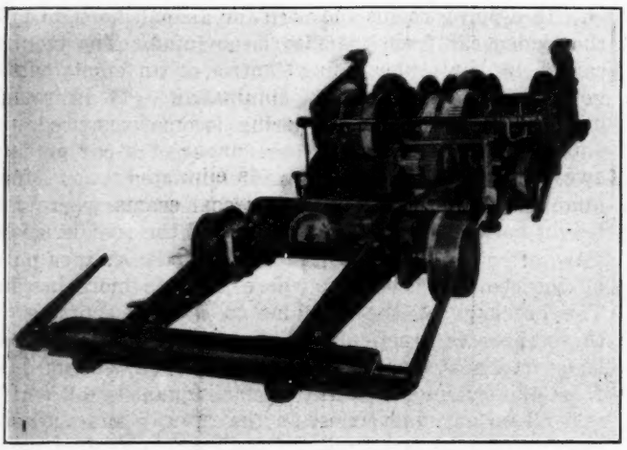
A scraper loader not only gives the foregoing advantages applicable to any mechanical loader, but in addition to these, the following: (a) The gathering haulage cost by use of scraper loader is further reduced as the mine car never leaves the entry. (b) A larger mine car can be used with the scraper loader, especially in low coal, as it always remains outside the working place. This not only means more tonnage per car and a saving in haulage cost, due to the larger car, but it also makes savings in oil, grease and maintenance, as there are only four wheels on a 3-ton car whereas there are twelve on three 1-ton cars. The initial investment would be less, because fewer cars are needed in a concentrated mechanical loading area than would be necessary in the scattered hand-loading territory. (c) The use of the scraper eliminates all necessity for track in the room for haulage purposes. This does away with the time lost due to wrecked cars on poorly laid room tracks. (d) The yardage cost is practically eliminated, for the scraper itself is only 18 in. high and as this is the largest moving part that enters the working place, no bottom need be lifted or top brushed in any room in which a man would be able to crawl to the face. (e) In dipping rooms the need for a small hoist to pull the loaded car from the face is obviated. The trouble caused by the miner losing control of an empty while going into a room also is eliminated. (f) In rooms driven to the rise the gathering locomotives need not enter the working place. The danger of a car getting away while being loaded also is eliminated. (g) More lump coal can be loaded in low coal seams where the height between the top of the car and the roof is small. This, of course, is due to the fact that the scraper pulls all the coal to the entry, where there is more height. The breakage of the coal due to the transporting in the scraper is practically nil, as the first few scraper loads in a new working place are composed of bug dust from the cutting machine, a small quantity of which will fill up any unevenness in the runway and act as a cushion for the remainder of the coal. (h) If a place caves at the face, there is no possibility of losing any part of the apparatus except possibly two jacks and sheaves, which may be replaced at low cost. (i) The time lost in replacing a loaded car with an empty is negligible, being made between the trips of the scraper. (j) The design can be kept simple, as a scraper loader does not need the multiplicity of moving parts necessary in a piece of apparatus which picks up and loads its own coal.

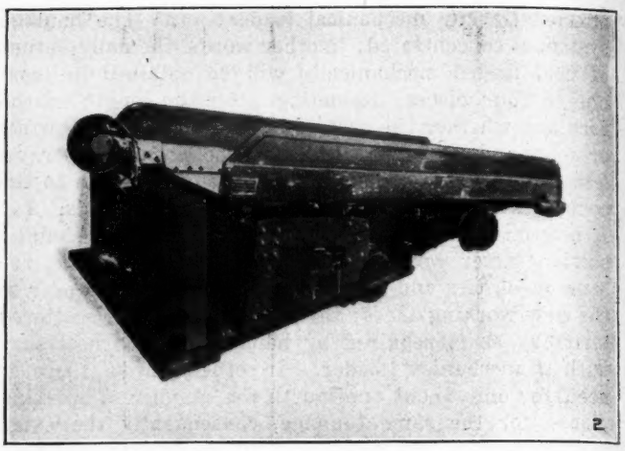
RECLAIMING STORED COAL BY SCRAPER LOADER

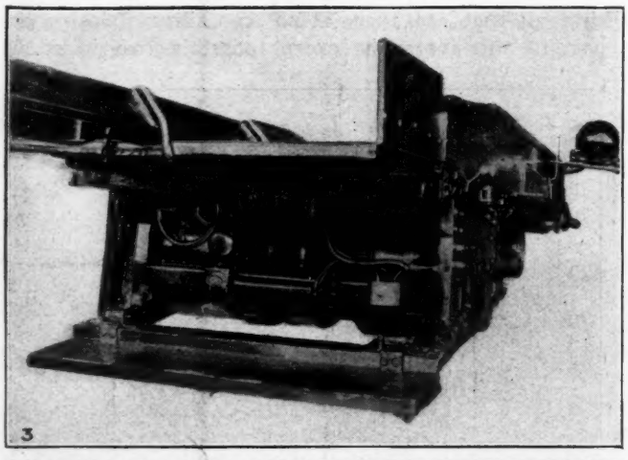
The coal can be not only reclaimed but also stored with a scraper loader. In this illustration the scraper can be seen pulling coal up to the chutes to be delivered by them to the cars in the ordinary manner. With this arrangement no slack cars need be left over from one day to the next.

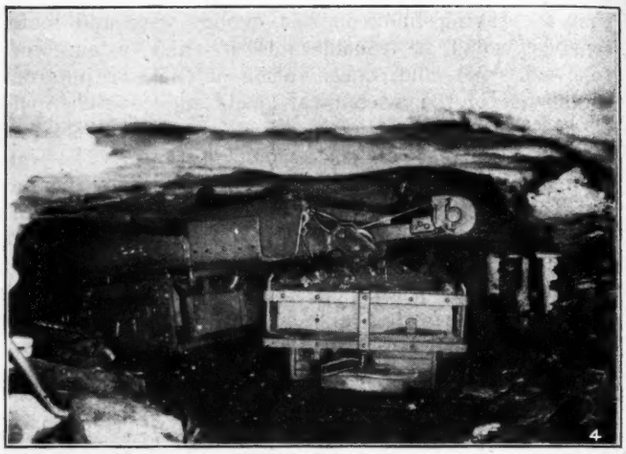
The following are the conditions that will limit the production of mechanical loaders: (a) Impurities in coal seam so located that they mix with the coal when shot, thus delaying the loader; (b) inadequate car supply; (c) lack of proper support from mine officials. This failure to provide mechanical loaders with the facilities that should be afforded them can be attributed to the fact that a loader generally is installed in a section of the mine to itself. The bulk of the coal in most mines at the present time comes from the hand-loading section of the mine, hence where there is a shortage of cars the mechanical loader suffers, as it is natural for the mine foreman or haulage boss to throw all the favors to the sections producing the most coal. Later on, as the loader becomes established, the mechanical device will get its share of the cars. In other words, the more mechanical loaders there are, the better will be the service they will get.

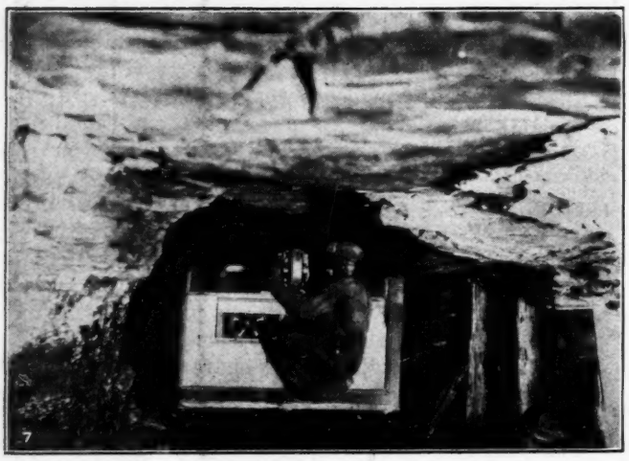
The history of the development of the scraper loader











SCRAPER LOADING WITH LOCOMOTIVE CHUTE AND HOIST

(1) Gearing of hoist with chute removed. (2) Chute with head-pulley arm telescoped. This is a view of the completed hoist in its traveling position. It is self-propelling and self-contained and automatically sheaves the rope. (3) Loader with arm extended as seen from the heading side. Note the headlight on the machine which enables the operative to see the coal face. (4) Loading coal into car, the scraper being pulled up to the head pulley. (5) Hoist in position. Two short jacks hold the machine in place while loading. One of these can be seen in the illustration. (6) Loader leaving room neck carrying scraper. For transportation the scraper and other accessories are pulled into the chute by the winding engine. (7) Chute-hoist in the entry making its trip from room to room.

SCRAPER GATHERING COAL FOR SHIPMENT

Another view of the storage pile shown on a previous page. At this mine the operator during the depression had dumped 5,000 tons of coal in a pile which he was able to load out during the strike at a good profit.

is a repetition of the history of other mining machinery. The cutting machines passed through the same process of evolution and education. In the early days, to the skeptical mind, undercutting by machinery was impracticable, but today practically two-thirds of the coal produced in this country has been undercut by a mining machine.

The scraper loader has successfully passed through these various stages, and one point has been thoroughly demonstrated: To make a success of a loading machine in a mine, every effort must be made to keep the equipment working. Tonnage lost by any delay is irretrievably lost, because a loader loads at its maximum efficiency at all times. In other words, there is no possibility of speeding it up and regaining lost time.

With proper co-operation there is no doubt of the complete success of scraper loading. It has already proved its adaptability to widely varying sets of conditions.

The headpiece of this article shows a scraper being filled with coal. The illustration exhibits also how the sheave is placed by which the scraper is directed. The return rope can be detected at the rear of the scraper.

Reports and Investigations State Geological Surveys and Mining Bureaus

Coal Reserves in Armstrong County, Pa.

BY JOHN F. REESE

ARMSTRONG COUNTY, Pennsylvania, has six coal beds that are now of economic interest. In order of present importance as shipping coals they are the Upper Freeport, Lower Kittanning, Upper Kittanning, Lower Freeport, Pittsburgh and Brookville.

The extensive development and outcrop of the Upper Freeport bed throughout the county have furnished many measurements of its thickness, making possible an accurate estimate of quantity.

The percentage of this bed that can be recovered is governed by the sequence in which the Upper and Lower Freeport coals are mined. If the Lower Freeport bed is worked first and pillars are drawn, the overlying rocks will cave and break the Upper Freeport bed, thereby causing a partial and in many places complete loss of that coal. The Upper Freeport bed contains the second greatest reserve within the county and is the largest producer, yielding about 3,500,000 tons yearly.

Throughout the townships in the northern half of the county where the lower Kittanning coal outcrops a fair amount of information as to its thickness and persistency is available. For the townships in the southern half data are meager for purposes of calculation and a general average based on thicknesses in surrounding areas was adopted and a low percentage of recovery allowed because the extent and thickness of this bed are not known. This bed contains the greatest coal reserve within the county and ranks second in production with a total of over 1,500,000 tons annually.

Little information as to the extent and thickness of the Upper Kittanning bed is available, except from its recognized outcrop and development in a few localities. This bed is extremely variable as to section and thickness, attaining great height in local troughs or channels 200 to 300 yd. in width and thinning to 12 in. or less at trough limits. It is known as the "Pot Vein" because of this peculiarity. The Upper Kittanning bed in these troughs is a cannel coal, with 24 in. or less of bituminous coal under the cannel. Where available measurements show sufficient thickness for mining, the presence of small workable areas contiguous to the place of measurement has been assumed. The quantity of coal was computed from the average thickness of the bed in that vicinity. A low percentage of recovery has been adopted owing to the extreme variability of this bed and lack of knowledge of persistency and extent.

A fair number of measurements of the thickness of the Lower Freeport coal are available from its outcrop and development, making possible a fairly accurate computation of quantity. Little is known as to the extent and thickness over large areas and a general average based on thicknesses in surrounding areas has been used in calculations. A low percentage of recovery was adopted for this reason and because of the general "faulty" condition of the bed where this coal is mined.

The extensive development and outcrop of the Pittsburgh bed furnish a fair number of measurements of its thickness, thus making possible a reliable computation of quantity.

For some localities no information is available as to the mined-out areas of the various beds computed herein. For these places an estimate of probable depletion has been made based on age and size of operations, or on the difference between original areas and statements of acreages remaining unmined.

The result of computing the coal reserves within this area based on the latest maps, engineering data and methods is shown in the accompanying table.

COAL RESERVES IN ARMSTRONG COUNTY *

Bed	(In Net Tons) Original Deposit	Mined Out	Recoverable
Pittsburgh	17,500,000	13,900,000	2,800,000
U. Freeport	1,288,300,000	60,350,000	943,000,000
L. Freeport	607,000,000	5,000,000	387,100,000
U. Kittanning	131,500,000	4,500,000	69,900,000
L. Kittanning	1,541,200,000	23,510,000	1,001,000,000
Brookville	165,200,000	30,000	87,300,000
Total	3,750,700,000	107,290,000	2,491,100,000

* The area of Armstrong County is 682.2 square miles.

Steel Cast Valve with Monel Metal Parts For Use with High-Pressure Steam

INCREASING use of high pressure and superheat in modern power plants has been responsible for various improvements in the design of valves and fittings employed in the transmission and control of steam during recent years. In many instances not only has the design itself been improved but the substitution of materials better adapted to the purpose in hand than those ordinarily employed has resulted in a marked increase in utility.

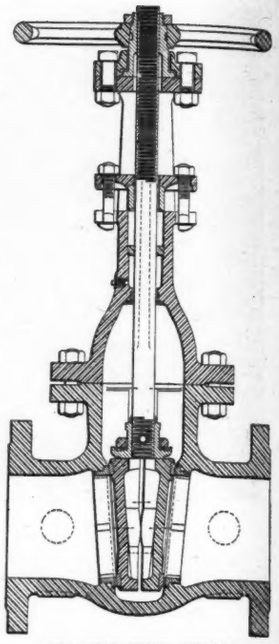
The valve shown in the accompanying illustration is a case in point. In this valve a steel casting has been substituted for the cast iron usually used. No gaskets are employed, all joints under pressure being made with metal to metal surfaces. Aside from the fact that the body of this valve is a steel casting and all bearing surfaces coming in contact with each other within the valve body in controlling the flow of steam are made of monel metal, certain other details increase the utility of this piece of equipment. Among these might be mentioned a monel metal collar rolled into the upper portion of the bonnet against which the gate nut bears when the valve is open and a stuffing box of generous proportions, the gland being drawn down by means of bolts instead of the ordinary studs.

On this valve even the hand wheel is of steel casting with a rim so shaped and knurled as to give a firm hand hold.

Making the hand wheel of steel not only provides against breakage during shipment but also against breakage of the wheel when in use.

Valves of this type, which are manufactured by the Reading Steel Castings Co., of Bridgeport, Conn., are made from steel of the following properties: Tensile strength 70,000 lb. per sq.in.; elastic limit, 35,000 lb. per sq.in.; elongation in 2 in., 30 per cent; reduction in area 25 per cent. The analysis of this material is approximately as follows: Carbon, 0.25 per cent; silicon, 0.35 per cent; manganese, 0.65 per cent; phosphorus, not over 0.045; sulphur, not over 0.040 per cent.

With a valve body of this type, should the piping in which it is placed be subjected to excessive stresses, the valve will throw such stress on to the expansion joints where it belongs. If these are not present, however, the valve is capable of assuming a certain amount of distortion without danger of failure. Valves of this kind are built for a working pressure of 350 lb. with a total temperature not exceeding 800 deg. F., or for a working pressure of 500 lb. at a temperature not exceeding 100 deg. F.



VALVE FOR HIGH PRESSURE STEAM

All joints under pressure have metal to metal surfaces, no gaskets being used.

British Coal Mines Show Operating Loss In Figures for Quarter Ended in June

As a counter argument against the demand of British coal miners for increased wages the operators have issued figures for the quarter ended June this year, showing operating losses. The figures are as follows:

	Total	Per Ton
Proceeds of sales	£45,875,798	18s. 11.41d.
Net costs	45,910,483	18s. 11.58d.
Deficit	£34,685	0s. 0.17d.

Totals and the amounts per ton of the profits or losses in the different areas:

	Total	Per Ton
PROFITS		
Northumberland	£92,480	0 8.18
Durham	411,398	1 1.41
South Wales	175,308	0 4.13
LOSSES		
Yorkshire, Nottingham, Derby, Leicester and Warwick	£224,644	0 3.65
North Wales	48,840	1 8.02
Lancashire, Cheshire and North Staffordshire	168,775	0 8.78
South Staffordshire and Shropshire	43,903	2 8.99
Cumberland	36,306	1 10.58
Bristol	12,269	4 2.45
Forest of Dean	7,920	1 2.64
Somerset	8,048	1 2.09
Kent	14,667	3 4.80
Scotland	148,499	0 5.03

Production costs (in which wages were by far the largest item) varied considerably. Scotland was lowest with 16s. 3½d. per ton, and Bristol highest with 26s. 5d. For the country as a whole the figures are:

	Total	Per Ton s.	d.
Wages	£30,540,289	12	7.39
Stores and timber	6,005,714	2	5.77
Management, repairs, etc.	7,884,887	3	3.08
Miners' welfare fund	221,688	0	1.10
Royalties	1,477,190	0	7.32
Total costs	£46,129,768	19	0.66
Less proceeds of miners' coal	219,285	0	1.08
Net costs	£45,910,483	18	11.58

Numbers of employees and the output and earnings per man-shift worked during the quarter:

	Numbers Employed	Per Man Shift Output Cwt.	Worked Earnings s.	d.
Northumberland	55,469	17.54	8	9.20
Durham	154,840	17.59	9	1.15
South Wales	211,009	16.77	9	8.29
Yorkshire, Nottingham, Derby, etc.	301,897	20.00	12	7.05
Lancashire, Cheshire and North Stafford	135,049	14.32	9	2.18
North Wales	15,708	12.82	8	0.19
South Stafford and Shropshire	6,651	16.13	7	4.27
Cumberland	10,164	13.94	9	11.31
Bristol	2,055	10.34	8	0.81
Forest of Dean	3,907	13.15	7	8.25
Somerset	4,503	13.05	8	9.12
Kent	1,511	20.73	12	9.35
Scotland	122,829	20.01	9	7.95
Great Britain	1,025,592	17.80	10	2.51

The total number of man-shifts worked during the three months was 59,831,062, and the number lost which could have been worked was 4,677,252.

THE COALS OF EASTERN KENTUCKY, when mixed with the proper proportion of low-volatile coal, are peculiarly suited to the manufacture of byproduct coke, states the Bureau of Mines, in Technical Paper 308, just issued. An investigation made by the engineers of the U. S. Fuel Administration showed that in 1917 87 per cent of the northeast Kentucky production, 52 per cent of the Hazard production, and 44 per cent of the production of southeast Kentucky was suitable for making such coke. Largely as a result of the expansion of the byproduct coke industry, the production of coal in eastern Kentucky has grown by leaps and bounds. In fact the field has developed more rapidly than any other major field. The average output for 1916-1920 was more than 13 times as great as the average for 1890-1900, whereas the growth in bituminous output as a whole during the same period was less than fourfold. One consequence of this extraordinary growth has been a development of mine capacity far in excess of the ability of the railroads to transport, so that eastern Kentucky is the scene of transportation difficulties whenever the demand for coal is active.

Problems of Operating Men

Edited by James T. Beard

Investigate Records of All Applicants for Certificates of Competency

Thoughts Suggested by Recommendations of Bureau of Mines Regarding Certification of Mine Officials — Investigation of Candidates' Records Needed

HAVING read with deep interest the various letters discussing the certification of mining officials and particularly the letter of Robert A. Marshall, *Coal Age*, Nov. 16, p. 799, regarding recent conferences on mine-safety-problems, I would like to offer a few comments on the subject.

The letter of Mr. Marshall refers to a circular that was recently issued by the Colorado Fuel & Iron Co., containing certain recommendatoins of the U. S. Bureau of Mines bearing on the matter of the certification of mine officials.

From the reading of the circular, as quoted by Mr. Marshall, it appears that the Bureau of Mines advocates the revoking of certificates of competency every five years. While this may be a good thing, it seems to me that some plan might be worked out by which certificates would be granted, to men who deserve them, without requiring repeated examinations.

Investigation of Candidate's Record Most Effective Plan

My opinion is that it would do more good to adopt some such plan than to require that the men shall submit to an examination, as to their fitness and qualification, each five-year period. This would, of course, require the careful investigation of the record of each certified official.

There is no question but that many incompetent men now hold certificates of competency that have been granted them by regularly appointed examining boards. If an investigation was to be made in regard to this condition, I think that much blame would be found to rest on the shoulders of the state authorities, including the members of examining boards.

Recommendations of Little Value

It will hardly be denied that, in the great majority of cases, very little investigation is made of the previous records of candidates who present themselves for examination. The recommendation as to character and habit, required by law in many states, is generally easily obtained and sufficient attention is seldom given as to its authenticity.

Would it not be well if all such recommendations were required to be properly certified before a justice of the peace, who would be responsible for its authenticity and correctness regarding the facts stated in respect to the character and habits of the applicant.

Examining Board Must Determine Capabilities of Candidates

One of the first questions that an examining board should consider, in acting on the application of a candidate for a certificate of competency, is the question of whether he is a capable man and has had the practical experience claimed. What is needed is men of practical experience, in addition to their theoretical knowledge of mining and reputable character and habits.

Allow me to suggest that the Bureau of Mines would do much good by establishing a short course in mining, conducted by correspondence. I believe such a course would help many worthy men in their struggle to obtain certificates of competency.

In reference to the proper investigation of the character and experience of candidates, it is my belief that the state mining department should make a rigid investigation of each man's record. To that end, the applicant for a certificate should be compelled to file his application with the mining department, say one year before he intends taking the examination.

Many Attempts Made to Deceive Examining Boards

One man with whom I was formerly acquainted, desiring to secure a first-class certificate and not having had the required experience in gaseous mines, undertook to substitute for that experience a subterfuge, by exposing himself, in a closed room, to an atmosphere charged with gas produced by the use of carbide and water placed in the room.

The idea of this man was to study the action of gas on the flame of a safety lamp and claim that his knowledge was obtained through actual experience in a mine generating gas. A little later, the man passed the examination required by law and received his certificate, which would not have been possible had a proper investigation been made of his previous record.

Another instance is that of a young man, a railroad employee who was out of employment, applying to the superintendent of a mine who was a friend of his and gave him work. In eight months' time the young man went before an examining board and was granted a first-class certificate. Had the examining board made any attempt to investigate the man's record and experience, the certificate would not have been given him.

Other cases could be cited showing the need of the rigid investigation of the records of all applicants for certificates; but I will only mention one more. A certain large coal company had a number of assistant foremen who they desired should secure certificates. About two months before the examination, in some mysterious fashion, these men received the questions to be asked and the maps to be ventilated by candidates in the coming examination. Strange to say these men passed the examination and were granted certificates.

In closing, let me say that if more attention was given to the qualifications of candidates for certificates our certified men would not need to have their certificates revoked and pass another examination at stated periods.

W. H. Perdue.

Chattaroy, W. Va.

Electric Cap Lamp in Firebossing

Conditions requiring the use of cap lamps by firebosses—Safety lamp for testing, but electric lamp for light.

MOST firebosses will disagree with the statement made by O. G. Sharrer, writing in *Coal Age*, Nov. 30, p. 879, where he contends that "any official whose duties require him to test for gas in the mine should carry no other lamp than an approved testing lamp."

In this respect, Mr. Sharrer confesses that he is possibly out of date. He acknowledges that a large number of firebosses, today, carry electric lamps in their caps. The conditions under which he has been employed must have been decidedly different from conditions in the mine where I am working.

In my particular section, the chambers or chutes are very steep, pitching from 30 to 70 deg. In climbing these pitches, it is practically impossbile to carry a safety lamp in such a manner as to throw the light ahead and avoid

danger. When going up or down these chutes, one must use both hands to keep himself from falling.

These conditions require a man to carry a good light in his cap and there is no better lamp for that purpose than the electric cap lamp. An open light, would, of course, be out of the question for a fireboss. He must also have his safety lamp attached to his belt and use it for making the test for gas when he has reached the face.

Even when traveling the gangway, a fireboss can inspect the condition of the roof better and detect danger more quickly when he has a good cap lamp on his head. To my mind, for a fireboss to discard the electric cap lamp, in examining a mine, is to deprive himself of one of the best means of avoiding danger and making a thorough examination of his section.

During the past six years, my constant practice has been to carry an electric cap lamp on my head when making an examination of a mine. I believe this is as important as carrying a good safety lamp for testing for gas.

Before closing, allow me to say that I am opposed to the use of a flashlight in any place where firedamp may possibly exist. It is my opinion that every miner and mine laborer should be equipped with an electric cap lamp, since that will afford him the greatest degree of safety in his work.

Shickshinny, Pa. FIREBOSS.

Another Letter

REFERRING to the question of firebosses examining a mine when carrying an electric cap lamp on their heads, exception to which is taken by O. G. Sharrer, in his letter, *Coal Age*, Nov. 30, p. 879, I want to say that my previous claim of such being the present-day practice of a large number of firebosses can readily be confirmed by any who care to investigate further.

It was always my practice, while firebossing in a certain mine that I am safe in saying will certainly prove a difficult proposition for firebosses in the future. The roof in that mine was very poor, as it was in all the mines, in that district, working the same seam. Little attention was given to the future development of the mine and it required no prophet to see breakers ahead and know that a large amount of coal would be lost beyond recovery.

ELECTRIC CAP LAMP AN ESSENTIAL REQUIREMENT

Under the conditions prevailing throughout that district, it is my claim that one essential requirement of firebossing, in those mines, was to provide the best possible light and carry that light on the head, where it would be in the best position to reveal the condition of the roof and enable a fireboss to detect any loose top, faults and other dangers.

The following are some reasons why a good light is essential in firebossing. First, it is necessary to insure the man's own safety; and, second, it is absolutely necessary to the making of a thorough inspection of the mine that will make it safe for work.

The best testing lamp in use gives but a poor light as compared with that of an electric cap lamp. Moreover, the form of a safety lamp is not convenient for throwing the light on the roof where it is most needed in the detection of dangers such as a fireboss is seeking to find. In canting a safety lamp to one side so as to better throw the light on the roof, there is danger of smoking or cracking the glass.

Of all those who work in coal mines, the fireboss has the most need of a good light and the electric cap lamp best meets that requirement. If only for the purpose of lessening the strain on the eyes and avoiding the disease known as "miner's nystagmus," which is so common among firebosses, an electric cap lamp should always be carried when making an examination.

FAILING EYESIGHT OF FIREBOSSES

How many firebosses, on reaching forty or fifty years of age, find themselves incapacitated by reason or their failing eyesight. To such an extent has this been the case in Great Britain, that it is not uncommon for the older firebosses, in that country, to be ordered to get employment on the surface; and, in some cases, I believe, they have been pensioned. These older men, by reason of their mature judgment and experience are needed in the work of firebossing. Young firebosses are apt to be overconfident and make mistakes that the older men have learned through sad experience to avoid.

Some time ago, I was engaged with another man in repairing some stoppings that had been blown out by an explosion. Observing that I kept a watchful eye on my safety lamp, hanging on a timber nearby, my buddy asked the reason and I explained to him how the lamp was my friend, warning me of the danger should gas be present. In another way, though equally true, I have found the electric cap lamp a friend.

When making a test for gas, in order to avoid the bright glare of the light interfering with the accuracy of observing the flame cap in the safety lamp, my practice was to hide the electric light under the bib of my overalls. This became a natural habit of mine when making a test for gas.

Linton, Ind. W. H. LUXTON.

Herrin Murder-Trial Jury

Correcting a wrong statement regarding personnel of jury as being one-half miners. Jury said to include but one miner.

IT WAS with much surprise that I read the statement in *Coal Age*, Dec. 14, p. 964, regarding the make-up of the jury that is to try the men indicted for murder in connection with the Herrin massacre last June.

Speaking of the jury as completed, it is stated, "The twelve are more than half miners." Living in this vicinity as I do, it is my privilege to know, personally, the majority of the men on this jury and their several occupations.

In justice to the county officials and the honor of the State of Illinois, it should be known that the statement quoted above is very wrong. To my knowledge, there is but one miner on the jury, in spite of the efforts made by the defense to pack the jury with such men.

To corroborate this fact reference is made to the clerk of the court, at Marion, Ill. I know that *Coal Age* will gladly correct this error.

Benton, Ill. C. E. CHILDERS.

Mine-Track Switches

Providing a good roadbed — Size of track ties and rails important—Keep all switches clean to avoid derailment of cars.

LOOKING through the pages of *Coal Age*, from week to week, I have found it a great help to me in my work. The inquiry in regard to calculating the dimensions of switches and turnouts was of particular interest, Nov. 16, p. 801.

My experience in reference to mine-track switches leads me to suggest that it is of the utmost importance to provide a good roadbed. The track must be well ballasted and kept drained, if the best results are to be secured. Without these requirements, it is not possible to maintain good track conditions.

The size of the track ties and weight of rails used are also important, depending on the weight of the locomotives employed and capacity of the mine cars. With a 10-ton locomotive, hauling 2-ton cars, we are using 35-lb. steel rails laid on 4 x 6 in. ties. The frogs of all switches are made to match the rails.

One thing that must not be forgotten is the importance of keeping all mine switches clean and free from coal that falls from the cars. Unless this is done, good equipment will not suffice to prevent the derailment of cars or locomotives. ELBERT ROE.

Fork Ridge, Tenn.

Trackage in Mines

Many accidents due to poor mine tracks—Delays owing to derailment of cars cause loss in production—Instance of a mine visited.

FEW items affect both the tonnage and the cost of production of coal to the same degree as the trackage system in a mine. One cannot fail to be impressed with the importance of this fact, in reading D. C. Ashmead's account of what is being done in anthracite mines to lessen derailments, *Coal Age*, Nov. 30, p. 872.

An examination of the conditions existing in a majority of our coal mines will disclose to the most cursory observer the hindrance that a bad trackage system is in the operation of the mine. The trouble may be due to an insufficient number of ties to support the rails; or the use of too light

rails for the weight of locomotives and cars hauled over them.

Bad bonding of rails, cars in poor condition, lack of efficient arrangement of tracks, or want of a proper schedule in haulage may each or all play their part in the final result. An improperly laid track is a great drawback in the production of coal. When a car is derailed the entry may be blocked for an hour or more before the car can be again placed on the track.

Good Track Ties Important

Trouble is often due to the track ties being spaced too far apart; or they are too light for the traffic. My practice has been to space the ties not more than 4 ft. apart, in rooms, and from 2 ft. 8 in. to 3 ft. apart, on the main roads. Wherever the track is curved and on all turns and switches, the ties should be placed nearer together, say not exceeding 18 in. or 2 ft., cen. to cen., at the most.

All track ties must be of sound timber and my preference is to use sawed ties, instead of round timber. An important consideration is to use good cars mounted on good rolling stock. In laying track, it is always bad practice to use too sharp a curve.

Under favorable conditions, where proper attention has been given to the planning of a good trackage system and a good schedule is maintained in haulage, there is no reason why a maximum output should not result. There is no economy in attempting to save expense by using poor material or too small an amount of it when installing a trackage system in a mine. The entire system must be planned with respect to the desired output and the equipment in use.

A Poorly Managed Mine

Not long ago, I visited a mine that had a daily output of about 1,200 tons. On the main road, from the inby parting to the shaft bottom, the track was in good condition and could not be improved. On the cross-entries and on all the gathering hauls, however, the track conditions were very poor.

In this portion of the mine, the ties were not only of inferior quality but they were spaced too far apart, particularly as they were of hewed timber. It seems strange to me that, with the main road in such excellent condition, in this mine, more attention should not have been given to the tracks in the workings.

It will cause no surprise when I say delays in the mine were frequent and prolonged, because of the inability of the drivers gathering the cars at the face, to put the coal on the parting as quickly as the locomotive hauled it to the shaft bottom.

In my opinion, had proper attention been given to the tracks on the cross-entries and the gathering hauls, the output of this mine could have been increased from 1,200 to 1,400 tons a day. No argument is needed to press home the lesson the incident teaches.

Hillside, Ky. O. Kennett.

Inquiries Of General Interest

Calculating Weight of Water in Air Current

Humidity of Intake Air Estimated from Reading of Dry- and Wet-Bulb Thermometers—Weight of Water, Per Cubic Foot of Air, Determined by Temperature and Degree of Saturation

RECENTLY we have been much interested in determining what weight of water is carried into our mine by the air current, under varying conditions. A current of 150,000 cu.ft. of air per minute is passing into the mine. Readings taken with the hygrometer, in the intake airway, on different occasions, gave the following results: Dry bulb, 50 deg. F.; wet bulb, 48 deg. F.

Again, the readings taken were: Dry bulb, 44 deg. F.; wet bulb, 43 deg. F. I am anxious to ascertain the manner of calculating the percentage of moisture, or degree of humidity of the air and the actual weight of water carried into the mine as indicated by these readings. Also, let me ask, what portion of this moisture will be deposited from the air on its passage through the mine?

Lochgelly, W. Va. Mine Foreman.

The percentage of moisture in the air, or the degree of humidity, is the ratio that the actual vapor pressure bears to the saturated vapor pressure, at the given temperature. In order to make this calculation, in any given case, it is necessary to have at hand a table showing the saturated vapor pressures, for different temperatures. Such a table is found on page 77, *Mine Gases and Ventilation*, second edition.

Having this table, the actual vapor pressure, for any given temperature, can then be calculated from the saturated vapor pressure given in the table. The actual pressure is always less than the saturated pressure, by an amount that varies with the barometric pressure and the difference in the temperatures indicated by the dry- and wet-bulb thermometers. The calculation is made by the use of the following formula:

$$p_v = p_w - \frac{B}{30}\left(\frac{t_d - t_w}{88}\right)$$

Applying this formula to the first set of readings given by the correspondent and assuming a barometric pressure, in this case, of $B = 29.4$ in., the saturated pressure taken from the table, for the wet-bulb temperature, being $P_v = 0.3352$ in., we have for the actual vapor pressure,

$$P_v = 0.3352 - \frac{29.4}{30}\left(\frac{50 - 48}{88}\right) = 0.3129 \text{ in.}$$

In this case, therefore, the saturated vapor pressure for the dry-bulb temperature (50 deg.) being $p_w = 0.3610$ in., the percentage of moisture or degree of humidity of the air is, $H = (100 \times 0.3129) \div 0.3610 = 86.68$ per cent.

For the second set of readings, dry bulb 44 deg., wet bulb 43 deg., we will assume a barometric pressure of 29.5. In this case, the corresponding saturated pressures, as taken from the tables, are $p_{44} = 0.2885$ in.; and $p_{43} = 0.2777$ in. Then, the actual vapor pressure is

$$p_v = 0.2777 - \frac{29.5}{30}\left(\frac{44 - 43}{88}\right) = 0.2665 \text{ in.}$$

In this case, therefore, the percentage of moisture or degree of humidity is $H = (100 \times 0.2665) \div 0.2885 = 92.39$ per cent.

It now remains to calculate the weight of water vapor, per cubic foot of air. For this purpose, the formula giving the weight of a cubic foot of air is multiplied by the specific gravity of water vapor (0.6235); and the actual vapor pressure is substituted for the barometric pressure. Thus, for a dry-bulb temperature of 50 deg. and an actual vapor pressure of 0.3129 in., we have for the weight of water contained in a cubic foot of air,

$$w = 0.6235\left(\frac{1.3273 \times 0.3129}{460 + 50}\right) = 0.00051 \textit{ lb., nearly.}$$

Under these conditions, an air current of 150,000 cu.ft. per min. will carry into the mine $150{,}000 \times 0.00051 =$ say 76 lb. of water per minute; or $(60 \times 76) \div 2{,}000 = 2.28$ tons per hour.

Again, for the second set of readings, dry bulb 44 deg., actual vapor pressure 0.2665 in., the weight of water vapor, per cubic foot of air, is

$$w = 0.6235\left(\frac{1.3273 \times 0.2665}{460 + 44}\right) = 0.00044 \textit{ lb., nearly.}$$

Under these conditions, the weight of water vapor carried into the mine by an air current of 150,000 cu.ft. per min. is $150{,}000 \times 0.00044 =$ say 66 lb. per min.; or $(60 \times 66) \div 2{,}000 = 2$ tons nearly.

In neither case, will the moisture carried into the air by this air current be deposited in the mine. First, the air is not saturated at the temperatures given. Again, the mine temperature being generally higher than that of the air entering the mine, the capacity of the current for absorbing moisture will be increased, with the result

that the air will exert a drying action in the mine and absorb more moisture in its passage through the workings.

In the humidification of a mine, attention to which has been drawn, recently, in *Coal Age*, the only practical method is to raise the temperature of the intake air by causing it to pass over steam coils installed in the airway. At this higher temperature, the steam issuing from the pipe is rapidly absorbed by the air, which thus becomes saturated at a temperature much higher than that of the mine. As a result of being cooled in its passage through the workings, the air current will then deposit much of its moisture in the mine.

Examination Questions Answered

Indiana Hoisting Engineers' Examination, Indianapolis, 1922

(Selected Questions)

QUESTION—*What do you consider the proper level at which to carry water in a boiler? Give reason for your answer.*

ANSWER—The water level in a boiler should show about a two-thirds glass. That will give an ample margin between a high- and a low-water mark. If the water level in the boiler is too high, not only may priming result, by which is meant the passage of some of the water over into the cylinders of the engine; but the steam space above the water is reduced and the steaming capacity of the boiler correspondingly lessened. On the other hand, if the water level is too low there is danger of the overheating of the boiler plates, exposed to the heat of the furnace, above the water line.

QUESTION—*What effect does the size of the drum have on the life of a hoisting rope?*

ANSWER—Increasing the size (diameter) of the drum lengthens the life of the rope, by producing a less bending stress when the rope is wound on the drum. The bending stress forms part of the live load that the rope must carry. Therefore, as the bending stress is increased, the net load hoisted is proportionately decreased. It is a good rule to make the diameter of the drum from 75 to 100 times the diameter of the rope. A hoisting drum on which a six-strand, nineteen-wire, steel hoisting rope is to wind, should be at least sixty times the diameter of the rope.

QUESTION—*Where should a rope be most carefully watched and how would you examine a hoisting rope to determine that it is safe?*

ANSWER—That portion of the hoisting rope next to the coupling by which it is fastened to the cage requires the closest inspection, owing to its being subjected to harder service and more severe strains than other parts of the rope, especially when starting the cage from the bottom of the shaft too suddenly. A hoisting rope must be carefully examined, at brief intervals, to detect any possible broken wires. For that purpose, the engineer should be instructed to hoist the cage slowly, while the inspector allows the rope to pass through a bunch of waste held in his hand. At the same time, any undue wear of the wires forming the strands must be observed closely.

QUESTION—*Explain what is meant by alternating current and how it differs from direct current, as applied to electric power.*

ANSWER—An alternating electrical current is one where the arrangement is such that the direction of the current is changed, at regular short intervals. Direct current is one in which the flow is continuous in one direction. The former is capable of giving a more severe shock to the human system and requires less copper, for the transmission of the same power over equal distances, than what is required in the use of direct current.

QUESTION—*What causes scale in boilers and what means would you adopt to keep the same from accumulating?*

ANSWER—Scale is formed in boilers by the consolidation and hardening of the sediment and other impurities contained in the feedwater. The impurities are most commonly the carbonates of lime and magnesia, together with the sulphates of these elements and the sulphide of iron.

The formation of scale in boilers is greatly reduced by purifying the feedwater before it enters the boiler. Much of the impurities can be precipitated by heating the water in feedwater heaters. Where feedwater contains much sediment this may be removed by filtration or precipitation. Again, to prevent the accumulation of scale, boilers in constant use should be blown off, partially, at regular short intervals. Mud drums are most effective in collecting the sediment contained in the water and removing it from the boiler.

QUESTION—*What are the dangers to be watched for in boilers producing scales?*

ANSWER—Where scale forms readily, in boiler practice, there is always danger of overheating the boiler plates. The scale formed within the boiler impedes the transmission of the heat of the furnace to the water in the boiler and lessens the production of steam. This has a tendency to forcing the fire under the boiler and burning the plates or forming blisters that are dangerous. Excessive firing, under these conditions must be carefully avoided.

QUESTION—*(a) What is meant by an open circuit? (b) A closed circuit? (c) A grounded circuit? (d) A short circuit?*

ANSWER—(a) An open circuit is a wiring system in which the flow of the current is prevented by reason of an open switch.

(b) A closed circuit is any system of conducting material through which a current of electricity is flowing. It is immaterial whether the conducting material is wire or the ground, or other substance, just so the current will flow through it.

(c) A grounded circuit is one where a portion or all of the current passes into the ground through a connection with the wiring system. In many instances, a ground current is made to take the place of the return wire of the system.

(d) A short-circuit is any failure of the current to traverse the entire system intended, owing to an accidental connection being made at some intermediate point in the system, whereby the length of the circuit is shortened.

QUESTION—*Give five reasons why a steam pump will not discharge water out of a mine.*

ANSWER—Assuming the pump is located in the mine, there are numberless reasons to account for its failure to discharge water from the mine. The sump may be dry. There may be a lack of adequate steam pressure to overcome the water head and the friction head, against which the pump must operate. The pump may need to be primed, in order to start its action. The pump may need repacking to reduce the excessive slippage of water past the piston. Sediment in the water may have choked the valves, or the valve seats may need regrinding to prevent leakage. There may be an obstruction in the discharge pipe, or in the suction pipe; or these may not be of sufficient size or badly corroded.

QUESTION—*Give five reasons why a hot-water feedpump will not pump water into a boiler.*

ANSWER—The chief source of trouble in pumping hot water is due to the vapor pressure in the hot water counteracting, to that extent, the barometric pressure and thus reducing the suction lift of the pump. The pump may not be properly designed to enable it to force water into the boiler against the boiler pressure, when using the latter to operate the pump. A feedpump may be set too low, thereby increasing the head of water against the pump. The pump valves may not be working properly, or otherwise obstructed. The pump may be set too far from the boiler and unable to overcome the friction of the pipe connecting it thereto.

Electric Power Spreads in Coal Fields Of Eastern and Western Kentucky

One of the most interesting developments in 1922 in the coal districts of both eastern and western Kentucky was the spread of power and lighting service by companies supplying current to numerous small mines, at a big saving in cost of mining equipment. The Kentucky Utilities Co., which is operating in both the eastern and western Kentucky coal fields, has made great progress in developing mine-power facilities.

The company reports that in Harlan and Bell counties alone it has a 30,000-hp. connected load, and with the throwing of a single switch could stop 30,000 tons of daily production. One power plant is at Varilla, Ky., on the Cumberland River, and another at Pocket, Va. This represents seven years of development and about 500 miles of transmission line.

In western Kentucky 23 miles of additional transmission line is being completed, giving the company close to 200 miles there. Besides other plants the company is taking the surplus power from the St. Bernard Mining Co., which has a fine new 6,000-kw. power plant, and the surplus of the W. G. Duncan Mining Co.'s 6,000-kw. plant. These mines consume only a small portion of their capacity and sell the balance, in turn buying from the power company current for distant mines. These plants are of the latest type, turbine equipped.

Ninety-two miles of transmission line has been placed in service in western Kentucky in the last fourteen months. The Kentucky Utilities Co. is now serving mines, towns, farms, etc., over a wide area, 80 per cent of the power furnished being for purposes other than city service. Such towns as Greenville, Farlington, Madisonville, Hickman, Fulton, Clinton, Central City, Drakesboro, Bevier, Irvington, Dawson Springs, Hopkinsville and Princeton are now getting their power from this company.

In the larger units in both eastern and western Kentucky power is being produced at the mouth of the mines. Coal is chuted or dumped direct from cars to magazines or hoppers at the power house, saving all transportation charges and giving a ready outlet to a considerable amount of screenings in some instances, as the plants are equipped with modern stoking devices for handling small sizes.

Accidents in November Killed 365 Miners, 6.80 per Million Tons Produced

Accidents at coal mines in November caused the death of 365 men, according to reports received by the U. S. Bureau of Mines from state mine inspectors. This number includes 181 deaths in four major disasters that occurred during the month. The fatality rate for November was 6.80 per million tons of coal produced, as compared with 3.46 per million tons produced in October, 1922, and 3.60 per million tons for November a year ago. The average fatality rate for November during the past nine years (1913-1921) is 3.79 per million tons, based upon an average of 183 fatalities.

During the year 1922, to the end of November, 1,762 men were killed by accidents at coal mines, as compared with 1,823 fatalities during the first eleven months of 1921. The smaller number of lives lost during 1922 was due to the five-months' closing down of all mines affected by the miners' strike which lasted from April to August. In relation to the quantity of coal produced, the eleven-month death rate in 1922 was 4.34 per million tons, as against 3.89 for the same period in 1921.

The increased fatality rate in 1922 was due almost entirely to the heavy loss of life in explosions of gas and dust. The rate for this group of accidents was 0.742 per million tons as compared with 0.192 in the corresponding eleven months last year. The eleven-month rate for falls of roof and coal was 1.962 for 1922 and 2.004 for 1921. The rate for haulage was 0.749 as compared with 0.685; that for electricity was 0.166 as against 0.164. Fatal accidents from explosives have declined from a rate of 0.318 per million tons in 1921 to a rate of 0.201 during the year just closed.

COAL-MINE FATALITIES DURING NOVEMBER, 1922, BY CAUSES AND STATES

(Compiled by Bureau of Mines and Published by *Coal Age*)

State	Underground													Shaft					Surface							Total by State	
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1922	1921
Alabama	4	....	1	....	90	....	....	....	....	....	....	....	95	....	....	....	....	....	....	....	....	....	....	....	....	95	6
Alaska	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0
Arkansas	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0
Colorado	7	....	1	....	....	....	....	1	....	....	....	....	9	....	....	1	....	1	....	....	....	....	....	....	....	10	5
Illinois	5	....	3	1	....	....	....	....	....	....	....	....	9	....	....	....	....	....	....	....	....	....	1	....	1	10	16
Indiana	5	....	3	....	....	1	....	....	....	....	....	....	9	1	....	....	....	1	....	....	....	....	....	....	....	10	7
Iowa	2	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	2	2
Kansas	2	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	2	0
Kentucky	1	....	2	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	1	1	4	7
Maryland	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	1
Michigan	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	0
Missouri	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0
Montana	....	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	1
New Mexico	2	....	....	7	....	....	....	....	....	....	....	....	9	....	....	1	....	1	....	....	....	....	....	....	....	10	2
North Dakota	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0
Ohio	10	....	1	....	....	1	....	1	....	....	....	1	14	....	....	....	....	....	....	....	....	....	....	1	1	15	10
Oklahoma	1	....	....	....	1	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	2	2
Pennsylvania (bituminous)	15	5	11	77	....	3	....	....	....	....	....	2	113	....	....	....	....	....	....	....	....	1	....	3	4	117	24
South Dakota	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0
Tennessee	3	....	....	1	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	4	0
Texas	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	1	0
Utah	1	....	....	....	....	1	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	2	2
Virginia	2	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	2	1
Washington	2	....	....	....	....	....	1	....	....	....	....	....	3	....	....	....	....	....	....	....	....	1	....	....	1	4	1
West Virginia	17	1	7	....	....	....	....	1	....	1	....	1	28	1	....	....	....	1	....	....	....	2	....	....	2	31	20
Wyoming	3	....	1	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	4	1
Total (bituminous)	84	6	31	86	91	6	1	3	....	1	....	4	313	2	....	3	..	5	....	..	3	1	1	5	10	328	108
Pennsylvania (anthracite)	15	2	4	2	....	11	....	....	1	....	....	2	37	....	....	....	....	....	....	....	....	....	....	....	....	37	50
Total, November, 1922	99	8	35	88	91	17	1	3	1	1	....	6	350	2	....	3	..	5	....	..	3	1	1	8	10	365	....
Total, November, 1921	75	5	27	10	....	15	....	6	..	2	....	4	144	1	....	4	..	5	1	1	5	....	....	2	9	....	158

I. C. C. Issues Service Orders 33 and 34

Due to failure of the Baltimore & Ohio R.R. to furnish adequate cars to the West Virginia Northern R.R. Co. and the Indian Creek Valley Ry. for the shipment of coal for the U. S. Navy the Interstate Commerce Commission issued on Jan. 6 Service Order 33, effective Jan. 9, directing that the B. & O. assign cars to certain mines, to be counted against their allotment, as follows: Three cars per day for nine consecutive working days to the Lucky Jack Mine of the Lucky Jack Mining Co., Snyder, W. Va.; ten cars per day for nine consecutive working days to the Lambert Mine of the Bonafield Coal Co., Tunnelton, W. Va.; two cars per day for nine consecutive working days to the Victory Mine of the Victory Coal Co., Tunnelton, W. Va.; four cars per day for nine consecutive working days to the Freeport Mine of the H-D W. Coal Co., Tunnelton, W. Va.; eight cars per day for nine consecutive working days to Borgman Mines No. 1 and 2 of the Borgman Coal Co., Tunnelton, W. Va.; three cars per day for nine consecutive working days to Borgman Mine No. 3 of the Borgman Coal Co., Tunnelton, W. Va.; five cars per day for twenty-seven consecutive working days to the Kimmel Mine of the Howard Coal Co., Davistown, W. Va.

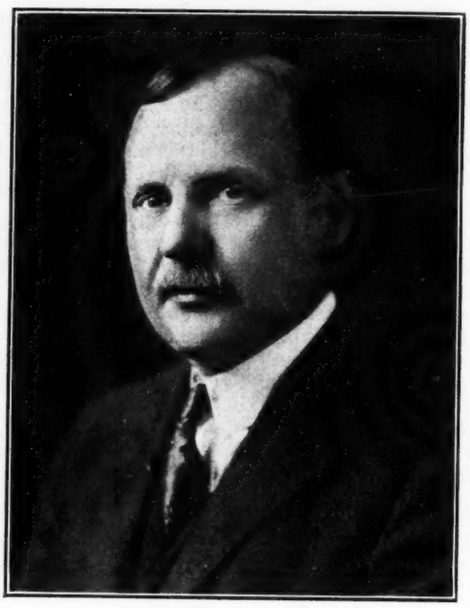
In Service Order No. 34, issued Jan. 6 effective Jan. 9, the Pennsylvania R.R. is instructed to assign eight cars daily for fifteen consecutive working days to the Ann mine of the Oakville Coal & Coke Co., at Latrobe, Pa. The coal is for Army use. The cars are to be counted against the mine's allotment.

Searles Heads Pennsylvania Coal & Coke Corporation; Watkins Resigns

J. W. Searles, who was vice-president and for several years in charge of sales of the Pennsylvania Coal & Coke Corporation, has been elected president of that corporation to succeed T. H. Watkins, who resigned. This announcement was made on Jan. 3 when it also was stated that as a result of negotiations extending over a period of several months, the Pennsylvania Coal & Coke Corporation has acquired all the property and assets of the Watkins Coal Co. It also was announced that T. H. Watkins has disposed of a large amount of his stock in the Pennsylvania Coal & Coke Corporation. His son, C. Law Watkins, will act as vice-president in charge of operations.

A. G. Edwards, secretary and treasurer, who has been associated with T. H. Watkins for more than thirty years, also retired, being succeeded by E. B. Houser. Mr. Watkins also retired as a director of the corporation.

The Pennsylvania Coal & Coke Corporation owns in fee or has under lease more than 40,000 acres of coal in Cambria, Blair, Indiana and Clearfield Counties, Pennsylvania, and negotiations have been about concluded for the acquisition of other lands which, with the Watkins Coal Co. properties, will give the corporation ample reserves.



J. W. SEARLES

Mr. Searles has been with the Pennsylvania Coal & Coke Corporation and its predecessors for more than twenty years, having joined the staff of the Webster Coal & Coke Co. in 1901. In June, 1921, he was made vice-president in charge of sales.

Summary of Statistics of Coal in West Virginia, Fiscal Years 1921 and 1920

	For Year Ending June 30, 1921	For Year Ending June 30, 1920	Increase of 1921 Over 1920	Decrease of 1921 Under 1920
Counties in which coal is mined on a commercial scale	35	35	.....	.....
Firms operating on a commercial scale	993	882	111	.....
Openings of all kinds subject to the mining law	1,570	1,440	130	.....
Gross tons pick-mined coal from commercial mines	21,028,617	22,937,433	.....	1,908,816
Gross tons machine-mined coal from commercial mines	59,032,987	56,053,883	2,979,104	.....
Total gross tons of coal from commercial mines	80,061,604	78,991,316	1,070,288	.....
Estimated gross tons of coal from small mines	700,000	1,000,000	.....	300,000
Total gross tons of coal from all mines	80,761,604	79,991,316	770,288	.....
Gross tons of coal converted into coke	1,257,065	1,872,355	.....	615,290
Net tons of coke manufactured	836,728	1,172,217	.....	335,489
Total value of coal at the mines (gross tons)	$375,541,458.60	$271,970,474.40	$103,570,984.20	.....
Total value of coke manufactured (net tons)	$8,015,854.24	$7,455,300.12	$560,554.12	.....
Value of a ton of coal at the mines (gross tons)	$4.65	$3.40	$1.25	.....
Value of a ton of coke at the ovens (net tons)	$9.58	$6.36	$3.22	.....
Mining machines in use	3,847	3,542	305	.....
Average number of coke ovens in use	3,955	4,232	.....	277
Days mines were in operation	155	182	.....	27
Days ovens were in operation	144	162	.....	18
Pick miners employed in commercial mines	17,140	14,385	2,755	.....
Machine operators and miners employed in commercial mines	45,574	34,547	11,027	.....
Underground laborers in commercial mines	32,778	28,052	4,726	.....
Outside employees connected with commercial mines	20,184	19,237	947	.....
Coke employees	1,050	1,205	.....	155
Total persons employed at commercial mines and coke ovens	116,726	97,426	19,300	.....
Persons killed	346	320	26	.....
Persons injured non-fatally	842	848	.....	6
Persons employed for each man killed	338	311	27	.....
Persons employed for each man injured	139	115	24	.....
Tons of coal mined in commercial mines for each fatality	231,392	246,845	.....	15,453
Tons of coal mined in commercial mines for each non-fatality	95,085	93,150	1,935	.....
Wives left widows	103	177	.....	74
Children left fatherless	232	385	.....	153
Acres of coal worked out	10,405	9,618	787	.....
Tons of coal produced in commercial mines per miner, pick and machine miners included	1,227	1,615	.....	388
Average earnings of each pick miner per year	$1,165.65	$1,451.45	.....	$285.80
Average earnings of each pick miner per month	$97.14	$120.95	.....	$23.81
Average price per gross ton of mining run-of-mine coal	$0.95	$0.91	$0.04	.....

Commission Urges Continuance of Present Wage Scale Until 1924, if Necessary to Avert Mine Tie-Up

By Paul Wooton
Washington Correspondent of *Coal Age*

By far the most important step taken by the President's Coal Commission was its action on Jan. 4 in telegraphing P. H. Penna and William Green, chairman and secretary, respectively, of the joint wage conference in Chicago, asking for the continuance of present wage scales for one year if efforts to reach an agreement should fail. The text of the commission's telegram follows:

"The Congress of the United States, charged with the duty of legislation for the general welfare of the American people, has created the United States Coal Commission to investigate the coal industry and to report the facts which it may find and to make recommendations to assist the legislative branch of our government in its efforts to guarantee justice to all concerned, to stabilize the industry and to keep the mines in uninterrupted operation.

"This commission has not yet had time to ascertain the facts nor to reach any conclusions as to the merits of your controversies, but it is satisfied that delay in reaching an agreement is bad for the whole country and that every interested party would suffer a greater economic loss by the closing of your mines even for a comparatively short period than would be sustained by a continuance of your present agreement until April 1, 1924.

"If, therefore, all other efforts to reach an agreement fail, the commission urges you, in the interest of the common welfare, to continue your present arrangement until April 1, 1924, by which time this commission expects to have found and reported fully all the facts over which your disagreements have arisen, with recommendation to the Congress, and by which time the Congress will have had opportunity to consider and take such action in the premises as it may deem wise."

Penna Replies to Hammond Telegram

To this message Mr. Penna replied as follows:

"Your telegrams dated Jan. 2 and Jan. 4 addressed to the joint Reorganization Committee of Bituminous Coal Operators and Coal Miners were given serious consideration by the operators in their meeting here today, after they had failed in their effort to reach an agreement with the miners upon a method for future wage-scale making. The joint conference made earnest, serious and sincere effort to reach an agreement. The cumbersomeness of a nation-wide conference of bituminous-coal operators and coal miners representing fifteen producing districts made success impossible. The diversity of opinion and the divergence of interests in such a gathering is obvious to any competent observer. The operators' proposal to the conference was the only one upon which agreement could be reached among themselves. We believe further it offered a practical and practicable solution of our difficulties. We regret that the miners could not agree with us on this proposal. No other solution could come from this conference. As to renewal of the present arrangement with the miners, as requested by your telegram dated Jan. 4, a reading of the Cleveland agreement with the miners dated Aug. 15, 1922, will disclose that the present conference has no power, jurisdiction or authority to take such action. The conference or conferences to consider this matter comes subsequent to the adjournment of this meeting. The arrangement of such conferences is being given consideration at this time."

The text of Mr. Green's answer follows:

"Your telegram directed to me as secretary of the Reorganization Committee was read to the conference of coal operators and miners. Each side decided to make reply. Both groups decided to make separate reply thereto. The United Mine Workers representatives were profoundly impressed with the advice and suggestions transmitted through your message. Unfortunately because of the diversity of interests represented in the conference it was impossible to reach an agreement upon the form and character of a wage-scale conference. You can be assured, however, that the situation is not hopeless but on the contrary it is reasonably certain that a wage-scale conference will convene before the end of this month. The United Mine Workers will diligently endeavor to reach a settlement of the wage scale at the earliest possible date."

Opinion is much divided as to the wisdom of the action of the commission in sending its telegram. Some operators are of the opinion that a continuance of the existing scale of war wages represents the maximum which the mine workers hope to get. If the commission sides with the mine workers in that demand, there is little question as to such an agreement being made, it is argued. The continuance of the existing wage scale, however, these operators say, precludes the possibility of the public's getting cheaper coal and means that many operators in the union field will be forced into bankruptcy. It can be said, however, that this appears to be the minority opinion. Apparently the majority of the operators and most of the public prefer the continuance of the present wage scale rather than to take chances with a strike at a time when the country will be without reserves of coal.

Telegram Was Result of Careful Consideration

It is known that the commission carefully weighed the probable effect of its telegram before it was sent. On the day following the despatch of the telegram it was evident that Commissioners Hammond, Marshall, Smith, Alschuler and Howell, who were present at the conference with the newspaper men on that day, had no cause to think that a mistake had been made. They were strengthened in that attitude by the telegram from a coal operator in whom the members of the commission have the greatest confidence. That telegram read: "The commission's advice to the conference has had a definite, sobering effect and will culminate in the acceptance of your recommendation shortly."

There are those who look on the action of the commission as the beginning of mediation in the wage dispute. The first act of any mediator is to try to maintain the status quo. That is what President Harding did last summer. It is admitted generally that it constitutes a departure from fact finding and may alienate some of the co-operation which has been forthcoming from the operators. The full co-operation of each side undoubtedly could be maintained were the commission to stick religiously to fact finding. Commissioner Howell stated positively, however, to the correspondents that the principal aim of the commission thus far has been the prevention of a strike on April 1. Each of the five commissioners present emphasized on several occasions during the interview that the probabilities all favor an agreement of some kind that will prevent the strike.

Chairman Hammond stated that he sensed in the public mind a suspicion that an agreement would be delayed as long as possible so as to continue the uncertainty and make it possible to sell coal at higher prices. He declared, however, with apparent determination that the commission would pillory any interest responsible for delaying an agreement so as to affect prices. He made the point that the commission is not suggesting how an agreement is to be reached but is interested in action which will prevent a strike next April.

Commissioner Howell made the point that an analysis of the present price of coal would reveal that any reduction in the wage scale, within the range of possibility, would form a small item going into that cost.

Governor Marshall made a plea for constructive handling of the coal situation and of the commission's doings in the articles written for publication. He asked the correspondents not to throw a monkey wrench in the machinery

in the hope of obtaining big headlines on what they write.

Although the administration has been watching events closely, especially efforts to bring coal producers and miners together amicably for settlement of a wage scale and working conditions this spring, it has no intention of injecting itself into these negotiations at this time, it was stated at the White House Friday.

The White House spokesman said that while the adminis tration anxiously hopes that a way will be found to bring about peace in the coal world, it does not consider the time opportune to exert pressure by the national government on the representatives of the bituminous-coal industry and of the workers, who have been conferring at Chicago.

Utilities Representatives Outline Problems To U. S. Coal Commission

Representatives of the public utilities, the central stations, gas companies and the street railways appeared before the U. S. Coal Commission on Jan. 3. The Joint Fuel Committee, representing the National Public Utility Association, of which John W. Lieb of New York is chairman, is composed of M. H. Aylesworth, of the National Electric Light Association; O. S. Fogg, of the American Gas Association; A. P. Lathrop, Lucius S. Storrs, J. W. Welsh and J. P. Jackson. The committee held an informal discussion with the commission throughout the entire day. In a printed brief made public after the meetings were over the public utilities set forward their position and function in the welfare of the country and urged that nothing be done to prevent the expansion of the utilities. After pointing out the large economies in the use of coal made possible by large-scale operations, especially in the central power stations, the brief points out:

"(1) Necessity for absolute continuity of operation to prevent public catastrophe and interruption of industrial production.

"(2) The difficulty experienced in obtaining dependable and adequate contract coal supplies in times of railroad or mining emergencies.

"(3) The difficulty, by reason of the unresponsiveness of governmental or commission control of rates, of paying the prices required to buy 'spot coal' in times of emergency.

"(4) Difficulty in obtaining the grades of fuel best adapted to the uses for which they are required.

"(5) The increased cost of utility operation and danger of suspension of service where it becomes necessary to use improper grades of fuel."

The occasional "serious and extraordinary financial burdens" placed on the utilities and passed on to the public through high-priced coal, especially in 1922, was discussed at length. It is pointed out, for instance, that last autumn manufacturers could get coal and utilities could not. The brief continues with a résumé of the difficulties experienced by the utilities in recent years, "particularly in 1919 and 1920 and during the spring and summer of 1922," in obtaining supplies of coal from their contractors; of the high prices they were obliged to pay for spot coal, of their experience with priorities and of their difficulties with poor qualities of coal.

The following extract appears in the brief under the caption—"Contracts fail to secure adequate coal supply":

"The difficulties the utilities have had is largely due to the fact that, when there is shortage of coal or of coal cars, the supply they receive on their contracts is prorated proportionately with the other customers of the mines. If the mine is contracted for to its normal capacity, and it finds itself able to supply but a portion of its output, the utilities under contract with it suffer with other contract customers.

"A typical illustration of the result of this condition is that of a Middle West medium-sized electric-power company, which during two weeks in October, was only able to obtain 2,000 tons, or 16 per cent, needed coal upon its term contracts during the fall of 1922. It was therefore compelled to buy 'spot coal' to the amount of 10,000 tons, which made up the deficit. Not only was this company under necessity of appealing to the Joint Fuel Committee to aid in relieving it from the imminent danger of shutting down, but it was compelled to pay an excess of $27,000 for its coal, obtained during the two weeks, over the amount which would have been necessary had it received its full supply on its contracts.

"To provide for deficit of coal on contracts in 1920, one large power company was compelled to bid for spot coal at such rates that it paid out over $900,000 beyond the amount which would have been necessary had it received one hundred per cent on its contracts, and paid for a similar purpose nearly $300,000 in 1922. Bituminous coal was purchased by a utility in 1920 at over $16 per ton delivered at a plant in New York. This was much higher than the average prices paid, but indicates the serious straits of the utilities in times of emergency when their contracts are not to be depended upon.

"In the case of a Southern power company an actual reduction of power to the extent of 15,000 k.w. occurred in 1922, because it was unable to get sufficient coal at any price though it had contracts for approximately ten times the coal needed. This caused serious trouble over a wide territory, crippling industrial production and contributing to labor unemployment.

"Another large utility which had contracts for 45,000 tons of coal for August, 1922, received 1,125 tons, and in November received only 42 per cent of contract amounts. The result was a continual lessening of its reserve even though it has bought 'spot' and foreign coal at high prices.

"Even the purchase of mines by the utilities does not always relieve them of much of the difficulty suffered by those who contract for their coal. Thus, a large and important Ohio valley utility reported on Dec. 5, 1922, that, of the 11.2 cars per day needed to equal the rating of its mine —in accord with the rules of the Interstate Commerce Commission—it was supplied with an average of only 2.8 cars per day in November.

"These examples can be multiplied by innumerable others."

Commission Issues Further Instructions on Form L-1, Covering Labor Earnings

The U. S. Coal Commission last week issued further instructions (B) relating to Form L-1, which covers earnings of labor, as follows:

"Referring to the original 'Instructions for filling out details on Form L-1,' the first three paragraphs of these instructions are modified as follows: Any company that so desires may leave blank the lines following: (1), (2), (3), (4) and (5) on the Form L-1, and transmit to the commission along with this form the information requested on lines (1), (2), (3), (4) and (5) *on a separate sheet.* The actual sheet will then be identified by code marks in the offices of the commission and the information given under these numbers will be held confidential.

"Under (2) in the original instructions for filling out details in Form L-1, the instructions directed, in the case of tonnage workers, to give on the line 'D/H' the number of days the tonnage workers were at work in the mine in that pay period. As indicated in the letter of Dec. 18, answering questions relating to Form L-1, this does not mean the number of full days that a tonnage man worked during a pay period, as it is fully understood that the number of full days cannot be ascertained. The word 'day,' in so far as it relates to tonnage workers, is to be understood as meaning 'starts.' In other words, enter on the line marked 'D' the number of days on which such workers actually started work; and this is to be determined, as already stated, by crediting a tonnage worker with a start for each day that a car of coal comes out with his check mark on it. Again, as has been already stated, it is clearly understood that this will in many cases give credit for a start where no actual start was made; but this will be explained in the report.

"The point that it is intended to make clear in the foregoing paragraph is that with tonnage workers the days given under the various payroll periods represent starts and the total days given in column 49 for such workers also represents starts and is not understood or intended to be full working days."

Chicago Conference Fails, So Next Move Is Parley Of Central Field in New York Jan. 17

The Chicago conference of miners and operators, Jan. 3-5, failed to agree upon any method of future negotiation in the coal industry. In three days of struggle on the part of various operator factions to put across their various programs and in three days of absolute refusal on the part of the miners to agree to anything less than four-state negotiation, only one concrete result was produced. That was a tacit agreement that another conference will be held in New York City between Jan. 17 and Jan. 22. It is highly probable this will open as a Central Competitive Field conference, as operators in that field are the only ones to be invited. President Lewis, of the miners, however, declined to admit that the outlying districts were not to be asked in. The invitation is to go out from Mr. Lewis as president of the United Mine Workers, and Phil Penna as an individual. Mr. Penna, who is secretary of the Indiana Bituminous Coal Operators' Association, was chairman of the Chicago conference and is ardently in favor of four-state negotiations.

What may happen after the New York conference convenes and what sort of negotiations may proceed are indeed problematical. It is not certain that the operators and miners will agree upon a continuance of the present wages and conditions for another year, as the U. S. Coal Commission, through Chairman Hammond, openly suggested to the Chicago conference on its second day. However, if anything can be said to be likely in so tangled a situation as present-day labor relations in the coal industry, the one-year plan is likely.

There is little doubt that Illinois, Indiana and northeastern Ohio will hasten at once to the New York conference. Southern Ohio is not so willing. Western Pennsylvania, the other unit in the Central Competitive Field, balks unless the four-state plan is officially and openly advocated by the U. S. Coal Commission, in spite of the operators' fear that a contract made on that basis will be just as illegal now in the eyes of the federal courts as it was when 225 participants in the last four-state pact were indicted.

Union Spurns District and State Plans

The Chicago conference, following two futile efforts of a subcommittee to agree upon a plan for future negotiations, convened the morning of Jan. 3. It received the failure report of the subcommittee, read the first of the John Hays Hammond telegrams to the conference—a message urging an agreement to prevent a strike lest the commission be faced with "the necessity of fixing the blame for failure to adjust your difference"—and then devoted a short time to oratory on both sides. In that first short joint conference the miners, in a speech by Secretary William Green, made it plain the union would agree to no district or state plan and would accept nothing short of a contract made with a group of operators at least as large as the old Central Competitive Field.

With no progress made, the conference decided it would try a small joint committee of five men from each side plus President Lewis for the miners and Mr. Penna for the operators. The other operator members were Rice Miller, Illinois; Charles O'Neill, central Pennsylvania; James W. Needham, Montana; Hugh Shirkey, Indiana, and Harry Taylor, Kansas; the other miner members were William Green, Indiana; John Ghizzoni, central Pennsylvania; Frank Farrington, Illinois; Lee Hall, Ohio, and Arch Helm, Missouri. This committee failed to agree upon anything.

That night an operators' committee tried to compose operators' differences sufficiently to enable them to make a proposal to the miners. The proposal, which was rejected the next day, was for district negotiations and was practically the same as the last one the operators suggested in the Chicago conference with the miners of the "two-by-two committee" a month before, except that it did not provide arbitration, so hateful to the union, nor any system of flexible wage scales. The committee which worked this futile plan out was: Charles O'Neill, central Pennsylvania; W. L. A. Johnson, Kansas City; T. K. Maher, Ohio; C. H. Jenkins, West Virginia; M. L. Gould, Indiana, and John Donaldson, Pittsburgh. This committee's proposal was:

That each of the United Mine Workers districts jointly represented in this conference be constituted a wage-scale-making body with full right of autonomy to negotiate wage-scale agreements based upon competitive conditions found existing and affecting each such district, and further, each such district shall be vested with the right to join with any other district or districts, as may be mutually satisfactory to the mine workers and the operators of the district or districts affected, for the purpose of negotiating wage agreements for such section.

For the purpose of negotiating wage-scale agreements to be effective upon the expiration of the present wage agreement, April 1, 1923, the following named districts: No. 2, central Pennsylvania; No. 5, western Pennsylvania; No. 6, Ohio; No. 10, Washington; No. 11, Indiana; No. 12, Illinois; No. 13, Iowa; No. 14, Kansas; No. 17, West Virginia; No. 21, Oklahoma, Arkansas and Texas; No. 22, Wyoming; No. 23, western Kentucky; No. 24, Michigan; No. 25, Missouri, and No. 27, Montana, shall exercise their inherent right under this resolution and by mutual agreement between the mine workers and operators of each of the districts or sections hereinbefore mentioned, shall meet in joint conference at such place as the operators and miners of each district or section may agree; such meetings shall convene in all districts not later than Jan. 22, 1923, for the purpose of negotiating wage scale agreements.

The section of any wage scale making a district or section agreement shall be binding only on that district or section and shall not be binding or have any effect whatsoever upon the making of a wage-scale agreement in any other district or section.

On the second day of the conference there came the second telegram from John Hays Hammond, chairman of the U. S. Coal Commission. This was addressed to Phil Penna, of the operators, and William Green, of the miners, and was the commission's first open proposal that the present contract be continued for another year. The message had an effect upon the conference but led to no agreement, even though a strong effort was made the next day to have the suggestion carried out. The telegram and the replies of Penna and Green are printed in full on another page.

Joint Committee Considers Hammond Telegram

Upon the refusal of the miners to entertain the proposal of the operators for district negotiations, the joint conference appointed another joint committee to reconsider the plan and to consider the Hammond telegram. This joint committee also failed to agree. On it were Phil Penna, Indiana; Herman Perry, Illinois; Michael Gallagher, Ohio; Charles O'Neill, Pennsylvania; James W. Needham, Montana, and J. B. Wilson, Oklahoma, representing the operators, and William Green, Indiana; John Brophy, Pennsylvania; Frank Farrington, Illinois; Lee Hall, Ohio; Arch Helm, Missouri, and President John Lewis, for the miners.

On the morning of the third day the conference resumed at a point no more advanced than that of the first day. A strong effort was being made, however, by such men as T. K. Maher, a leader in signing with the union to break the last strike, and by outlying district leaders such as Harry Taylor and C. H. Jenkins to stave off the studied drive of Illinois, Indiana and northeastern Ohio for four-state negotiation, and instead, to obtain national acceptance of the commission's proposal that the present contract be allowed to run another year.

Chairman Penna twice ruled motions looking toward immediate settlement as out of order. Each time his ruling was appealed and each time sustained, the miners not voting. Each time Mr. Penna yielded the gavel to J. W. Needham and took the floor in defence of his ruling. One of the rejected motions was by Mr. Taylor, favoring district agreements to continue the present wage scale a year. The other was by Mr. Maher, to adjourn the conference forthwith and immediately to reconvene it as a scale-making body to sign an agreement for a year, as the commission had urged.

By the noon adjournment it was obvious that the operators favoring four-state negotiations and an adjournment of the conference were in control and that nothing else could be done. Therefore early in the afternoon session adjournment was taken. No official announcement was made

of the proposed New York conference Jan. 17 but a message was wired to the U. S. Coal Commission prophesying that such a conference would be held. The message explained to the commission that no agreement was possible at Chicago because of the "diversity of opinion and the divergence of interests" among operators.

So the joint conference broke up with the outlying district operators complaining that "Phil Penna packed every committee" and therefore it was impossible to get any plan reported that might produce an agreement and thereby interfere with Midwestern hopes for four-state negotiations.

Herrin Defence Alleges That Massacre Was Committed by "Strangers"

Beginning Jan. 2 the defence of the five prisoners now on trial at Marion, Ill., for playing leading parts in the Herrin massacre of June 22, was raised by the testimony of about 50 witnesses in Judge D. T. Hartwell's court. About 30 more are to be heard, after which the defence lawyers—attorneys for the United Mine Workers—say their whole case will be in. During last week most of the 50 witnesses declared they saw the "death march" of the Herrin mob with its non-union prisoners and that not one of the five men on trial in this first case was to be seen. The state's witnesses, testifying before Christmas, positively identified them all as leaders of the mob.

During the past week there was considerable testimony as to the rough conduct of mine guards who served the Lester strip pit before the mob besieged it. Only one witness could testify that he had been attacked by guards, however, and he was "shoved in the side." Also it was testified by several witnesses that the mine guards fired into a group of union miners who tried to approach the mine to talk peace before the pit siege started June 21.

L. & N. Improvements Start New Projects In Eastern Kentucky Coal Fields

The $52,000,000 improvements which the Louisville & Nashville R.R. has started to make in its Kentucky lines and the betterments which other railroads have promised have already nurtured a crop of new coal-mining projects which are expected to lead the way for much additional development of the eastern Kentucky coal fields.

Several interesting deals have been reported during the past few days. An announcement comes from Whitesburg, Ky., that Sam Collins, state prohibition director, Lexington, Ky., and Louis E. Harvie, of Whitesburg, Ky., have purchased $40,000 of coal land on the L. & N., near Whitesburg, and plan a new town and development of coal properties.

K. U. Meguire, of the Harlan Coal Co., Louisville, one of the active young developers of eastern Kentucky, who has developed some big mining interests, recently went into the Hazard field and obtained control of the Gorman-Purciful Coal Co., which will become the Black Raven Coal Mining Co.; capital $25,000 at the start. This company will have only a small operation, now about six cars capacity, which will be increased to ten or twelve cars a day, by installation of modern equipment. Mr. Meguire has some other development projects in hand.

It is reported that the L. & N. will soon start an extension from Vico, on Carr's Fork, twelve miles into undeveloped coal property in Letcher County. The Fame-Elkhorn Coal Co. has announced plans for immediate development of property recently leased on Sandlick Creek, near Whitesburg, where a lot of lease taking has been going on of late. Development was expected to start after Jan. 1. The Fame-Elkhorn people will construct a new town and a modern plant. It is reported that the Sandlick branch of the L. & N. will be extended to the new leases.

Down in the Harlan field there are several projects pending development of the L. & N. extensions, especially if a plan for looping into the field and back, instead of double tracking, is carried out, as the north-bound loop would open a lot of new territory.

Coal Company to Sue for $1,000,000 Damages in Herrin Massacre

A suit for $1,000,000 against the United Mine Workers of America is being prepared by attorneys for the Southern Illinois Coal Co. as a result of the Herrin riots of last June.

The suit will be filed in the federal courts on the basis of evidence gathered by federal investigators of interference with interstate shipments of coal from the mine. The papers will be ready for filing within a few days, according to O. A. Olson of Bull, Lytton & Olson, attorneys for the company.

Coal Consumption by Public Utilities Increased in November

Electric public-utility plants consumed 3,329,948 net tons of coal during November, according to a recent report of the Geological Survey. This compares with 3,277,357 tons in October.

The average daily production of electricity by public-utility power plants in November, as predicted, broke all records of output, making the fifth time that a record has been established since May. The daily production of electricity in November was 146,600,000 kw.-hr.—nearly 5 per cent greater than the October record. The total output for the period January to November, inclusive, was 43,089,000,000 kw.-hr., an increase of more than 16 per cent over the same period for 1921.

Hammond Does Not Aspire to Succeed Fall

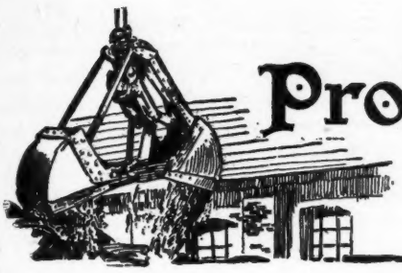
John Hays Hammond chairman of the U. S. Coal Commission, has been mentioned prominently in connection with the appointment of a successor to Albert Fall as Secretary of the Interior. Mr. Hammond told this correspondent, however, that the place has not been offered him and that he is not an aspirant for the office. He stated that he had undertaken the work with the Coal Commission and wants to keep his shoulder to that wheel until the task is completed. It is known that Secretary of Commerce Hoover regretfully declined the portfolio of the Interior.

As this is written, Representative Mondell, of Wyoming, seems most likely to obtain the appointment. It may be said, however, that the President makes his own appointments and it is doubtful if anyone, other than he, knows to whom the job is likely to go.

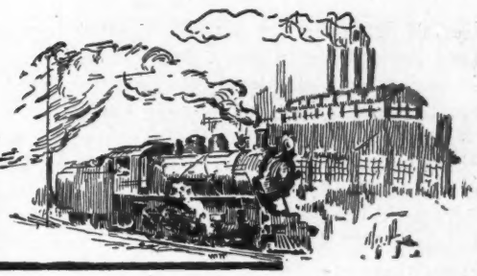
STATE INSPECTOR ADVOCATES SCHOOL OF MINES. — The establishment of a school of mines in West Virginia is advocated by R. M. Lambie, chief of the state department of mines of West Virginia, in a letter addressed to coal operators in various sections of the state. Governor E. F. Morgan also in a recent public address advocated the establishment of such a school. Though West Virginia is the second largest coal producer in the United States it has no school of mines and only one institution offering a course in mining and that only a brief one. "West Virginia," says Mr. Lambie in his letter, "has at present 800 men attending evening mining classes, a larger number than any other coal-mining state."

HARRY W. LITTLE, of Evansville, Ind., has gone to Washington to become secretary to the special committee of bituminous operators that is co-operating with the U. S. Coal Commission. J. C. Brydon is chairman of the committee. Mr. Little has grown up in the coal business. His father was an operator in the Indiana field. He has been secretary of the Southern Indiana Coal Trade Bureau since its formation. He was educated at Wabash college and Johns Hopkins University.

THE CONFERENCE OF CAR-DISTRIBUTION RULES between representatives of the National Coal Association and the American Railway Association will be held in Washington Jan. 11.



Production and the Market



Weekly Review

Heavier production followed the holiday idleness but the accumulation of empties was quickly absorbed when full-time work was renewed, and the car shortage is now as acute as it was before Christmas. Railroads made the most of the lull in loading and cleared away much of the congestion that has been slowing down the freight movement lately. Declining prices resulted from the heavier output but the drop was only temporary, and as the car supply tightened, spot quotations rallied and moved upward again. *Coal Age* Index of spot bituminous coal prices rose 6 points during the week to 375 on Jan. 8, with a corresponding average price at the mines of $4.54. The previous week this figure was $4.47.

Quotations Fluctuate with Car Supply

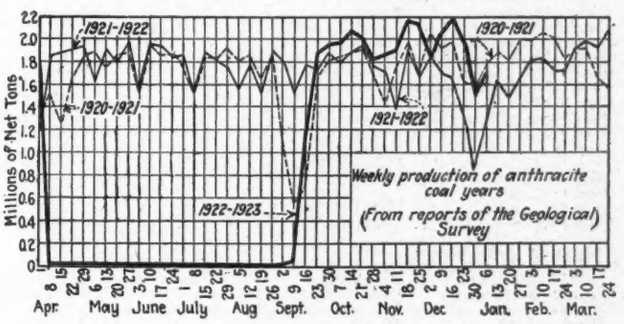
The daily rise and fall of quotations in accordance with the car supply shows how sensitive the spot market has become. Railroads, utilities and large users are drawing heavily on current output and the volume of spot offerings is meager. Smaller industries are buying on a day-to-day basis and the tendency to stock coal grows with the realization that the slender margin between supply and demand is endangered by inclement weather and its effect on transportation.

The steam market is spotty, nevertheless. In the Middle West mild weather and a better car supply conspire to lower prices a trifle and big consumers were quick to take advantage of the slump. The same conditions obtain, but to a lesser degree, in the Cincinnati territory. Inclement weather has held the market firm from Pittsburgh east on all steam coals. New England manufacturers, apparently seeing a better trade outlook, have awakened to the fuel situation and better buying has resulted. Hampton Roads prices are firming up with the stronger Eastern call.

The domestic market shows no signs of abating. Screened grades are moving eastward over an ever-widening territory to offset the anthracite shortage. In the normal markets for domestic soft coal there is a steady distribution by retailers and replenishments are promptly placed on order. Ohio reports a dearth of smokeless and other West Virginia grades and home-mined coal is moving well in that state as a substitute domestic fuel.

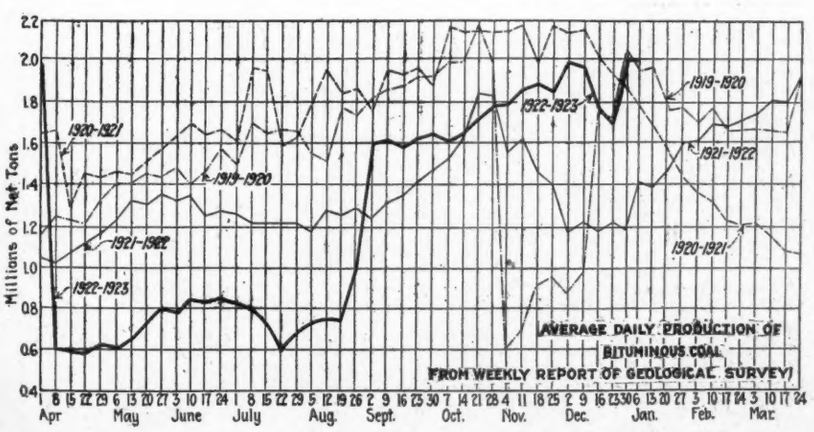
Uncertainty over the labor situation has not reached a point where it is a market factor. Consumers are apprehensive about the outlook on April 1, but are not inclined to stock any additional tonnage at such an early date.

Storms and cold weather have added to the troubles of the anthracite distributors. The drop in production over the holidays is being felt in lowered receipts. Do-



mestic sizes move out as fast as they are received and yard stocks are comprised mainly of buckwheat, bituminous coal and coke.

The Pennsylvania Fuel Commission has issued a fair-price list for all producers whose domestic schedules exceed $9.25, showing a high figure of $12. Canadian



Estimates of Production

(Net Tons)

	1921	1922
BITUMINOUS		
Dec. 16	7,063,000	10,666,000
Dec. 23 (*b*)	7,450,000	10,031,000
Dec. 30 (*a*)	5,960,000	9,974,000
Daily average	1,192,000	1,995,000
Calendar year	415,922,000	407,712,000
Daily av. cal. yr.	1,350,000	1,330,000
ANTHRACITE		
Dec. 16	1,637,000	2,197,000
Dec. 23 (*b*)	1,316,000	2,028,000
Dec. 30 (*c*)	848,000	1,541,000
Calendar year	90,474,000	52,465,000
COKE		
Dec. 23 (*b*)	117,000	281,000
Dec. 30 (*a*)	103,000	260,000
Calendar year	5,538,000	8,030,000

(*a*) Subject to revision. (*b*) Revised from last report.

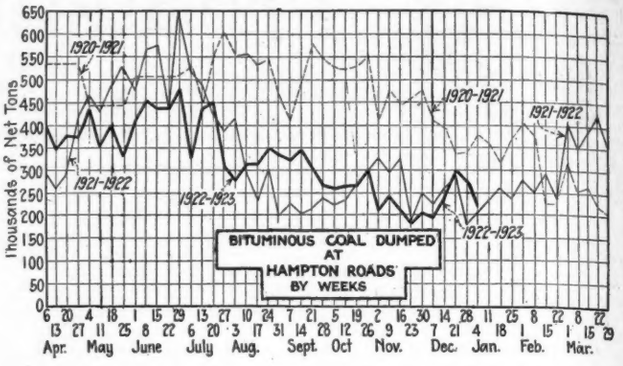
buyers, however, are actively seeking tonnage for which they are willing to pay a premium and in some cases, it is understood, cashiers' checks are offered in payment for the coal before it has been loaded.

Demand for coke as an anthracite substitute has abated somewhat. Heavy orders have been filled and producers and shippers are going slow until they can determine how it is going to be received by householders. This has lowered coke quotations 50c.@$1 from their level of last week.

BITUMINOUS

"Revised estimates for the last week of 1922 (Dec. 25-30) show a total output of 9,974,000 net tons of soft coal," says the report of the Geological Survey. "On Christmas Day production ceased. Recovery thereafter was prompt and a high rate of output was maintained, the average for the five working days of the week being 1,995,000 tons. The improvement shown in comparison with the two preceding weeks was largely due to the opportunity which the holiday afforded the carriers for relieving traffic difficulties.

"Preliminary reports of cars loaded during the first four days of last week (Jan. 1-6) indicate that production on New Year's Day was equal to nearly 30 per cent of the output on recent Mondays. The production on Tuesday was large and the average daily rate of output for the full week



apparently will be about the same as in the week before. Thus the output in the first week of 1923 is expected to be about 10,500,000 net tons.

"Summation of the weekly estimates of soft-coal production in 1922, based on reports of car loadings, shows a total

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

	Market Quoted	Jan. 9, 1922	Dec. 26, 1922	Jan. 2, 1923	Jan. 8, 1923†
Low-Volatile, Eastern					
Smokeless lump	Columbus	$3.40	$6.30	$7.25	$6.75@$7.75
Smokeless mine run	Columbus	2.15	6.00	6.60	6.50@ 6.75
Smokeless screenings	Columbus	1.50	5.50	5.75	**5.50@ 6.25**
Smokeless lump	Chicago	3.10	7.75	7.75	7.50@ 8.00
Smokeless mine run	Chicago	2.50	6.60	6.60	*6.25@ 6.50*
Smokeless lump	Cincinnati	3.00	6.75	7.00	**7.00@ 8.00**
Smokeless mine run	Cincinnati	1.90	6.25	6.25	6.00@ 6.50
Smokeless screenings	Cincinnati	1.25	6.10	6.25	6.00@ 6.50
*Smokeless mine run	Boston	4.70	8.60	8.60	*8.25@ 8.50*
Clearfield mine run	Boston	2.05	4.25	5.10	4.75@ 5.50
Cambria mine run	Boston	2.50	4.80	5.50	**5.25@ 6.00**
Somerset mine run	Boston	1.80	4.40	5.35	5.00@ 5.75
Pool 1 (Navy Standard)	New York	3.15	6.25	.....	6.00@ 6.75
Pool 1 (Navy Standard)	Philadelphia	3.00	5.50	5.80	**5.75@ 6.30**
Pool 1 (Navy Standard)	Baltimore	2.50	6.00	6.75	*6.50@ 6.75*
Pool 9 (Super. Low Vol.)	New York	2.15	5.35	5.75	**5.75@ 6.00**
Pool 9 (Super. Low Vol.)	Philadelphia	2.30	5.30	5.55	**5.50@ 6.00**
Pool 9 (Super. Low Vol.)	Baltimore	2.10	5.10	5.75	**6.00@ 6.25**
Pool 10 (H.Gr.Low Vol.)	New York	1.90	5.10	5.75	*5.00@ 5.75*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	2.00	4.85	5.10	**5.15@ 5.40**
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.75	4.60	4.50	**5.50@ 5.75**
Pool 11 (Low Vol.)	New York	1.70	4.15	4.50	*4.00@ 4.75*
Pool 11 (Low Vol.)	Philadelphia	1.70	4.45	4.75	*4.25@ 4.50*
Pool 11 (Low Vol.)	Baltimore	1.75	4.10	4.35	**5.00**
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.50	3.55	.....	3.75@ 4.25
Pool 54-64 (Gas and St.)	Philadelphia	1.55	.....	4.10	**4.20@ 4.40**
Pool 54-64 (Gas and St.)	Baltimore	1.40	3.85	3.85	**4.25**
Pittsburgh scr'd gas	Pittsburgh	2.65	5.25	5.25	4.50@ 6.00
Pittsburgh mine run (St.)	Pittsburgh	2.15	3.10	3.25	**3.50@ 3.75**
Pittsburgh slack (Gas)	Pittsburgh	1.80	3.00	3.25	3.00@ 3.50
Kanawha lump	Columbus	2.80	5.25	5.75	**6.00@ 6.50**
Kanawha mine run	Columbus	1.75	3.10	3.35	**3.50@ 4.00**
Kanawha screenings	Columbus	1.25	2.85	3.10	**3.25@ 3.50**
W. Va. lump	Cincinnati	2.40	6.25	6.50	6.00@ 7.00
W. Va. Gas mine run	Cincinnati	1.30	3.75	3.75	**3.75@ 4.00**
W. Va. Steam mine run	Cincinnati	.....	3.35	3.60	3.50@ 3.75
W. Va. screenings	Cincinnati	1.25	3.10	3.35	3.25@ 3.50
Hocking lump	Columbus	2.85	5.25	5.25	5.00@ 5.50
Hocking mine run	Columbus	1.75	2.85	3.10	3.00@ 3.25
Hocking screenings	Columbus	1.45	2.60	2.85	2.75@ 3.00
Pitts. No. 8 lump	Cleveland	2.85	4.75	5.10	4.75@ 5.50
Pitts. No. 8 mine run	Cleveland	$2.00	$3.25	$3.45	**$3.40@$3.65**
Pitts. No. 8 screenings	Cleveland	1.90	3.10	3.30	3.25@ 3.35
Midwest					
Franklin, Ill. lump	Chicago	3.80	5.35	5.35	$5.25@$5.50
Franklin, Ill. mine run	Chicago	2.90	4.10	4.10	4.00@ 4.25
Franklin, Ill. screenings	Chicago	2.00	3.10	3.10	*2.75@ 3.00*
Central, Ill. lump	Chicago	3.10	4.35	4.35	4.25@ 4.50
Central, Ill. mine run	Chicago	2.50	3.10	3.10	**3.25@ 3.75**
Central, Ill. screenings	Chicago	1.80	2.20	2.30	*2.15@ 2.35*
Ind. 4th Vein lump	Chicago	3.35	5.10	5.10	5.00@ 5.25
Ind. 4th Vein mine run	Chicago	2.55	3.85	3.85	3.75@ 4.00
Ind. 4th Vein screenings	Chicago	2.10	2.35	2.60	*2.25@ 2.75*
Ind. 5th Vein lump	Chicago	2.95	4.75	4.75	4.50@ 5.00
Ind. 5th Vein mine run	Chicago	2.25	3.60	3.60	3.50@ 3.75
Ind. 5th Vein screenings	Chicago	1.65	2.35	2.35	*2.00@ 2.25*
Standard lump	St. Louis	2.60	4.25	3.85	**4.00@ 4.25**
Standard mine run	St. Louis	1.85	2.10	2.40	**2.50@ 2.75**
Standard screenings	St. Louis	1.45	1.50	1.50	**1.75@ 2.00**
West Ky. lump	Louisville	2.85	4.35	4.35	**4.25@ 4.75**
West Ky. mine run	Louisville	1.90	3.35	2.75	2.50@ 3.00
West Ky. screenings	Louisville	1.25	2.50	2.10	2.00@ 2.25
West Ky. lump	Chicago	.....	4.25	4.25	4.00@ 4.50
West Ky. mine run	Chicago	.....	2.75	2.75	2.50@ 3.00
South and Southwest					
Big Seam lump	Birmingham	3.35	3.95	3.95	3.45@ 4.45
Big Seam mine run	Birmingham	2.10	2.60	2.60	*2.50*
Big Seam (washed)	Birmingham	2.15	2.60	2.60	2.50@ 2.75
S. E. Ky. lump	Chicago	.....	6.25	6.25	6.00@ 6.50
S. E. Ky. mine run	Chicago	.....	3.85	3.85	3.75@ 4.00
S. E. Ky. lump	Louisville	3.10	6.75	6.60	6.25@ 7.00
S. E. Ky. mine run	Louisville	1.65	3.50	3.50	**3.50@ 4.00**
S. E. Ky. screenings	Louisville	1.35	3.10	3.20	**3.25@ 3.50**
S. E. Ky. lump	Cincinnati	2.85	6.50	6.50	6.00@ 7.00
S. E. Ky. mine run	Cincinnati	1.40	3.35	3.50	**3.50@ 3.80**
S. E. Ky. screenings	Cincinnati	1.25	3.25	3.25	**3.25@ 3.50**
Kansas lump	Kansas City	5.00	5.50	5.50	5.50
Kansas mine run	Kansas City	4.10	3.75	3.75	3.75
Kansas screenings	Kansas City	2.50	2.50	2.50	2.50

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**. declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Latest Independent	Pre-Strike Company	Jan. 2, 1923 Independent	Jan. 2, 1923 Company	Jan. 8, 1923† Independent	Jan. 8, 1923† Company
Broken	New York	$2.34	.....	$7.60@$7.75	$9.00	$7.75@$8.25	$9.00	$7.75@$8.25
Broken	Philadelphia	2.39	$7.00@$7.50	7.75@ 7.85	.....	7.90@ 8.10	.....	7.90@ 8.10
Egg	New York	2.34	7.60@ 7.75	7.60@ 7.85	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Egg	Philadelphia	2.39	7.25@ 7.75	7.75	9.25@11.00	8.10@ 8.35	9.25@11.00	8.10@ 8.35
Egg	Chicago*	5.09	7.50	8.25	12.50@13.00	7.20@ 8.25	*12.00@12.50*	7.20@ 8.25
Stove	New York	2.34	7.90@ 8.20	7.90@ 8.10	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Stove	Philadelphia	2.39	7.85@ 8.10	8.05@ 8.25	9.25@11.00	8.15@ 8.35	9.25@11.00	8.15@ 8.35
Stove	Chicago*	5.09	7.75	8.25	12.50@13.00	7.35@ 8.25	*12.00@12.50*	7.35@ 8.25
Chestnut	New York	2.34	7.90@ 8.20	7.90@ 8.10	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Chestnut	Philadelphia	2.39	7.85@ 8.10	8.05@ 8.25	9.25@11.00	8.15@ 8.35	9.25@11.00	8.15@ 8.35
Chestnut	Chicago*	5.09	7.75	8.25	12.50@13.00	7.35@ 8.35	*12.00@12.50*	7.35@ 8.35
Range	New York	2.34	.....	.....	.....	8.25	.....	8.25
Pea	New York	2.22	5.00@ 5.75	5.75@ 6.45	7.00@11.00	6.15@ 6.30	**7.50@11.00**	6.15@ 6.30
Pea	Philadelphia	2.14	5.50@ 6.00	6.10@ 6.25	7.00@ 9.00	6.15@ 6.20	**7.00@ 9.50**	6.15@ 6.20
Pea	Chicago*	4.79	6.00	6.25	7.00@ 8.00	5.49@ 6.03	7.00@ 8.00	5.49@ 6.03
Buckwheat No. 1	New York	2.22	2.75@ 3.00	3.50	4.00@ 5.50	4.00@ 4.10	**4.00@ 6.00**	4.00@ 4.10
Buckwheat No. 1	Philadelphia	2.14	2.75@ 3.25	3.50	5.00	4.00	5.00	4.00
Rice	New York	2.22	2.00@ 2.50	2.50	3.00@ 3.50	2.75@ 3.00	*2.50@ 3.00*	2.75@ 3.00
Rice	Philadelphia	2.14	2.00@ 2.50	2.50	2.75@ 3.00	2.75@ 3.00	2.75@ 3.00	2.75@ 3.00
Barley	New York	2.22	1.50@ 1.85	1.50	1.75@ 2.00	1.50@ 2.00	*1.50@ 2.00*	1.50@ 2.00
Barley	Philadelphia	2.14	1.50@ 1.75	1.50	1.50@ 2.00	2.00	1.50@ 2.00	2.00
Birdseye	New York	2.22	.....	2.00@ 2.50	.....	2.10	.....	2.10

* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type, declines in *italics*.

for the year of 407,712,000 net tons. This figure nearly equals the preliminary estimate made on the same basis for the year 1921, and it is expected that final returns from the mines for 1922 will show that the total output for the year will approximate that of the year before.

ESTIMATED UNITED STATES PRODUCTION OF BITUMINOUS COAL
(In Net Tons))

	Production	Average Per Working Day
Annual production:		
1918 (Calendar year)	579,386,000	1,880,000
1919 (Calendar year)	465,860,000	1,515,000
1920 (Calendar year)	568,667,000	1,846,000
1921 (Calendar year)	415,922,000	1,350,000
1922 (Calendar year)	407,712,000	1,330,000

"The following table compares the 1922 production of both anthracite and bituminous coal with the output in the eleven years preceding. The figures are expressed in million net tons.

PRODUCTION OF ALL COAL, 1911-1922

	Anthracite	Bituminous	All Coal
1911	90	406	496
1912	84	450	534
1913	92	478	570
1914	91	423	514
1915	89	443	532
1916	88	503	591
1917	100a	552	652
1918	99a	579	678
1919	88	466 (strike)	554
1920	90	569	659
1921	90	416	506
1922	52 (strike)	408 (strike)	460

(a) Years of large washery production.

"The all-rail movement of coal to eastern New York and New England, although large for the season, was smaller in the week ended Dec. 30 than the two weeks preceding. According to the American Railway Association, 2,696 cars of bituminous coal and 3,166 of anthracite were forwarded through the Hudson gateways and 71 cars of soft coal and 18 of anthracite were shipped through Rouses Point."

The Lake movement of cargo coal for the 1922 season is reported as 18,522,000 net tons. In 1921 the movement was 22,413,000 tons, and 22,408,000 tons went forward in 1920. Heavy shipments from the Head-of-the-Lakes docks have reduced the supply of free coal to about 700,000 tons, but confidence in the all-rail supply has reassured Northwest consumers of soft coal.

Hampton Roads dumpings were 231,386 net tons during the week ended Jan. 4, as compared with 277,312 tons in the preceding week. More coal is flowing to Tidewater, however, as activity in the East enables shippers to offer prices that compete with going quotations in the West.

ANTHRACITE

Anthracite production declined sharply during Christmas week, when 1,541,000 net tons was mined as compared with 2,028,000 tons in the preceding week. Preliminary reports for New Year's week indicate an output of approximately 1,700,000 tons. The total output for 1922 is estimated at 52,465,000 tons. The decrease of 38,009,000 tons, or 42 per cent, as compared with 1921, is, of course, attributed to the 23-week's strike.

COKE

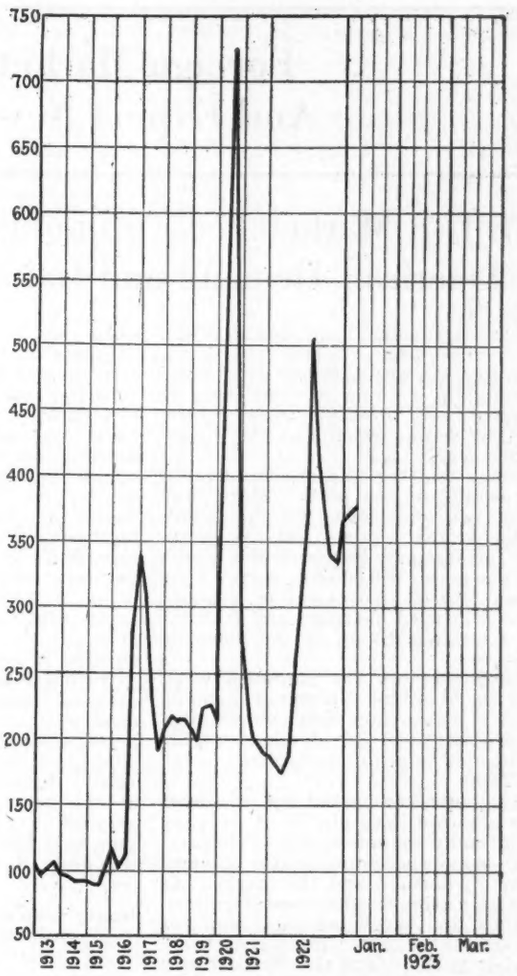
Production of beehive coke also declined during the week ended Dec. 30. The output was 260,000 net tons, as compared with 281,000 tons in the previous week. The year's output is placed at 8,030,000 tons, as compared with 5,538,000 tons in 1921.

The recession of domestic demand has softened the Connellsville market. Blast furnaces are taking light tonnages as it seems they had quietly covered for the first quarter, although the price bulge caused by the December domestic demand interfered with contracting programs and revised first-quarter figures upward 50c.@$1.

Car Loadings, Surplusages and Shortages

	Cars Loaded	
	All Cars	Coal Cars
Week ended Dec. 23, 1922	834,591	181,325
Previous week	888,082	198,510
Same date in 1921	666,605	136,089

	Surplus Cars		Car Shortage	
	All Cars	Coal Cars		
Dec. 23, 1922	9,563	2,532	99,908	43,664
Dec. 15, 1922	7,677	2,282	105,018	41,200
Same date in 1921	400,000	190,000	.....	.....



Coal Age Index 375, Week of Jan. 8, 1923. Average spot price for same period, $4.54. This diagram shows the relative, not the actual prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the U. S. weighted in accordance first with respect to the proportions each of slack, prepared tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board.

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Six Months July to Dec. 1921	Jan. 1 to Apr. 1, 1922 Inclusive	Sept. 5 to Dec. 23, 1922 Inclusive	Week Ended Dec. 23, 1922
U. S. Total	45.6	55.7	....	....
Alabama	63.5	64.6	84.4	(a)
Somerset County	55.5	74.9	36.3	31.9
Panhandle, W. Va.	55.3	51.3	56.8	53.8
Westmoreland	54.9	58.8	66.2	41.7
Virginia	54.8	59.9	55.6	45.3
Harlan	53.3	54.8	21.8	23.5
Hazard	51.7	58.4	16.5	15.2
Pocahontas	49.8	60.0	36.2	32.1
Tug River	48.1	63.7	27.9	33.0
Logan	47.6	61.1	25.4	23.6
Cumberland-Piedmont	46.6	50.6	31.7	23.3
Winding Gulf	45.7	64.3	29.9	21.8
Kenova-Thacker	38.2	54.3	42.2	36.3
N. E. Kentucky	32.9	47.7	27.9	29.9
New River	24.3	37.9	31.2	32.7
Oklahoma	63.9	59.6	59.3	30.9
Iowa	57.4	78.4	74.7	89.5
Ohio, Eastern	52.6	46.6	40.7	28.3
Missouri	50.7	66.8	75.4	90.9
Illinois	44.8	54.5	49.8	47.9
Kansas	42.0	54.9	54.8	65.8
Indiana	41.4	53.8	37.7	(a)
Pittsburgh†	41.2	39.8	40.8	26.2
Central Pennsylvania	39.1	50.2	53.7	42.3
Fairmont	35.3	44.0	34.4	34.1
Western Kentucky	32.5	37.7	32.4	(a)
Pittsburgh*	30.4	31.9	55.7	43.7
Kanawha	26.0	13.0	15.4	16.3
Ohio, southern	22.9	24.3	37.7	34.0

* Rail and river mines combined.
† Rail mines.
(a) No Report.

Foreign Market And Export News

British Market Feels Stimulus of Renewed American Demand and Italian Inquiries

British production continues at a high rate. The output during the week ended Dec. 23, was 5,506,000 gross tons, according to a cable to *Coal Age*, as compared with 5,742,000 tons in the preceding week, which was the record for the year.

Stormy weather has greatly delayed coal loading at the ports. More than 100,000 tons was booked for this month for the United States, and the movement for January, February and March may reach the 500,000-ton mark. The renewal of this movement is a result of the continued shortage and fears of a cold weather tie-up of the domestic supply.

In order to pay the minimum wage above the standard, November accounts in South Wales show that owners must sacrifice £191,000 of standard profits making this total for the twelve months £3,057,000.

Welsh pits are booked up in almost every case until the middle of January and in many instances, into February. There is no slackening in the general volume of demand and the market has again been stimulated by new American demands and large contract inquiries from Italy, the latter reputed to be in the vicinity of 500,000 tons, for delivery over the new year. A considerable amount of contract business has been concluded, which in itself must contribute by its volume to a strong market for some time to come. Prices in South Wales show a tendency to rise. Further inquiries on contract account have come in from various directions.

Coal shipments from Durham and Northumberland have developed at an amazing rate. The output has advanced by leaps and bounds, while less men have been employed.

Recent operations on the Newcastle coal market suggest that the first quarter of the year will be very active. Inquiries are heavy for January and February from all sources, including Russia. The demand for gas coal is particularly good, and coking coals come next in popularity. In general the inquiry is strongest for the superior brands of all classes.

In the coal tonnage chartering market there is little activity, as it is almost impossible to secure any guarantee of early loading. The ability to secure a loading turn has been the determining factor in rates for many weeks, and the congestion is restricting business. The partial adoption of a three-shift system by working it at the two most congested loading points is being watched with interest, and it seems fairly certain that an extension of the principle must be carried out if business is to proceed.

During November, 1,617,587 tons of coal were shipped for use of steamers engaged in the foreign trade, as compared with 1,322,287 tons in November, 1921, and 868,594 tons in November, 1920. During the first eleven months of the year 16,805,550 tons were so shipped, as compared with 9,646,136 tons, and 12,638,263 tons, in the corresponding periods of 1921 and 1920 respectively.

Heavy Imports of British Coals Ease French Market; German's Coal Statements Denounced

The situation remains satisfactory for industrial and excellent for domestic coals and patent fuel. The demand, however, owing to an increase of British coal imports (from 886,000 tons in September to 999,000 tons in October and 1,204,000 tons in November) and also to some increase in the French coal output, is not quite so feverish.

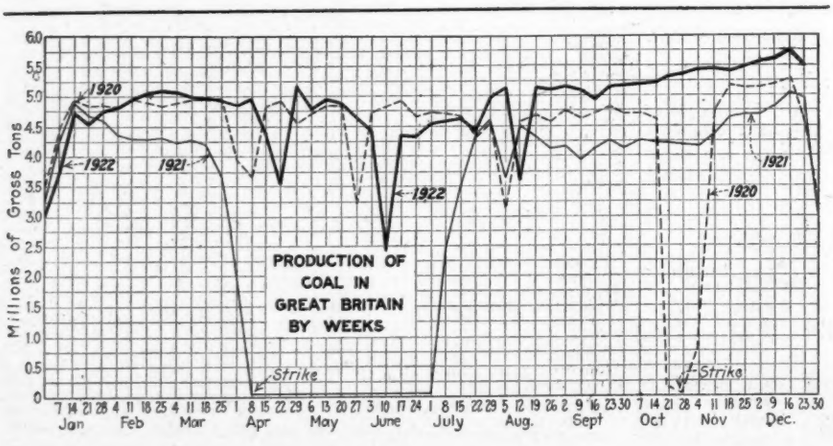
The collieries of the Nord and Pas-de-Calais have just published their new price schedule, to be applied as from Jan. 1. These prices are the same as those of July 1, 1922, except as regards patent fuel. However, these prices are generally exceeded by collieries for their outside sales.

The Société des Cokes de Hauts-Fourneaux, which is the agency distributing metallurgical coke to French blast-furnaces, has raised the adjusted price of coke at the Franco-German frontier to 110 fr., effective Feb. 1.

This is a consequence of the gradual reduction of German coke deliveries (averaging 11,300 tons per day for the first fourteen days of December, as against a daily minimum requirement of 15,000 tons) and also of diminished supplies from Belgium, the price of which has been increased to 120 fr. Owing to the slowness in the recuperation of the French coke production, the Société des Cokes de Hauts-Fourneaux had no other recourse but to apply to Great Britain for supplemental deliveries of coke—100,000 tons—at a price unfortunately which increases considerably the average price to be paid by French blast-furnaces.

So frequent have been recent reports in the German press stating that if Germany was obligated to import considerable tonnages of British coals, to the detriment of her finances, the fault lay in the deliveries of reparation coals imposed upon her by the Versailles Treaty, that it is necessary to dispel with plain facts this fallacious statement. On the basis of statistical data available for the first ten months of 1922, it is reckoned that France's coal consumption, within her new frontiers, will be, in 1922, equivalent to only 77 per cent of what it was (Alsace-Lorraine included) in 1913. But, notwithstanding this reduction in her consumption, France has imported about 12,000,000 tons of British coals (10,826,000 tons during the first eleven months), while she imported only 11,000,000 tons of these coals in 1913.

On the other hand, Germany is now proportonately better self-supplied with coals than the other countries of Western Europe, and most of the British coals she imports are probably used for the making of exported products. Therefore, if Germany has to pay higher prices for imported British coals than for her own coals, she is recovering that difference by selling manufactured goods at world's prices on export markets, and she has, besides, the advantage over other countries—all using British coals or coals equivalent in price—of cheaper labor and of cheaper handling and transportation costs. Moreover, Germany is availing herself of such successive increase in miners' wages by raising coal prices and thus gradually bringing them nearer to the world level. The London *Times* even declared, in one of its last issues, that, in present altered circumstances, imported British coal was more advantageous to consumers of the coasting area of Northern Germany than German coal itself.



GERMAN REPARATION DELIVERIES OF COAL IN NOVEMBER

	To France	To Luxenburg
	Tons	
Coal	332,901	3,068
Coke	367,753	125,223
Lignite briquettes	52,499	5,060

The French coal owners have not yet defined their attitude with regard to the claim for a wage increase recently formulated by French miners. However, as any increase in the wage rates would mean a corresponding increase of the selling prices, fears are freely expressed lest the competitive power of French coal mines should thereby be affected, all the more so as there is not much chance of the miners' work time being legally extended in accord-

ance with the owners' desires, although these desires were endorsed, last October, by the Mines Commission of the Chambre des Députés.

FRENCH COAL PRODUCTION

District	September —Metric	October Tons—
Nord and Pas-de-Calais; non-devastated mines	616,006	638,190
Nord and Pas-de-Calais; devasted mines	694,234	728,164
Saint-Etienne (Loire)	310,048	324,311
Lyons (Blanzy, etc.)	234,521	238,213
Clermont-Ferrand (minor Center fields)	109,281	114,955
Southern fields:		
Alais district	155,287	167,858
Toulouse district	151,198	159,674
Marseilles district (lignite)	61,355	66,933
Minor Western fields:		
Nantes district	4,693	4,947
Bordeaux district	5,493	5,599
Nancy district (Ronchamp)	8,274	8,345
Strasbourg (Lorraine district)	369,332	367,299
Total	2,719,722	2,824,488

Hampton Roads Pier Situation

	Week Ended— Dec. 28	Jan. 4
N. & W. Piers, Lamberts Pt.:		
Cars on hand	958	1,057
Tons on hand	65,709	74,625
Tons dumped	110,420	87,254
Tonnage waiting	8,850	5,850
Virginian Ry. Piers, Sewalls Pt.:		
Cars on hand	921	983
Tons on hand	51,050	55,800
Tons dumped	74,072	59,449
Tonnage waiting	15,000	6,733
C. & O. Piers, Newport, News:		
Cars on hand	1,144	1,610
Tons on hand	67,750	92,200
Tons dumped	63,108	59,892
Tonnage waiting	2,718	4,425

Export Clearances, Week Ended Jan. 4, 1923

FROM HAMPTON ROADS

For Cuba:	Tons
Nor. SS. Frednes, for Santiago	2,040
Dan. SS. Nordstjernen, for Havana	2,962

FROM PHILADELPHIA

For Cuba:	
Nor. SS. Munerway, for Havana	....
Dan. SS. Gai, for Havana	....

Germany Seeks More British Coal

In December Germany had her first experience with deflation with a rather significant effect upon the industrial, especially the coal situation. The mark rate improved, all in all by nearly 30 per cent. Prices, however, especially those comprising cost of living, have continued their upward flight. The only instances of a decrease of prices are those of pig iron, which are keyed to the rate of exchange, and of rolled products. Coal prices on Dec. 1 were adjusted at a ratio to their pre-war level, corresponding with a rate of the mark to parity of 1,900. The recent lowering of this rate put coal prices above pre-war level, in fact to nearly 15 gold marks per ton compared with 12 gold marks in 1913.

The margin between the price of German and British coal, c.i.f. Hamburg, has almost disappeared. The increase of freightage, coming into force on Jan. 1, will even cause a margin in favor of British coal, as long as the present rate of exchange prevails.

In spite of such conditions, the miners have again raised claims for a considerable increase of wages on the ground of the still rising cost of living. Upon their request the overtime shifts in the Ruhr district, which have had such favorable effect upon production, have been stopped from Dec. 18 to Jan. 15 for the alleged reason to grant the miners a relaxation, but manifestly for the purpose to put force into their new claims.

Coal imports have lately shown a decline. The import of British coal in November was still above the pre-war average, but is nearly 100,000 tons less than the preceding month. On the strength of the small margin left between German and British prices, the impending increase of freights already mentioned, and the drop in the rate of production expected from the stoppage of the overtime shifts, large contracts have recently again been placed by importers of British coal.

November production in the Ruhr district was 8,596,214 tons of bituminous coal, 2,176,850 tons of coke and 376,438 tons of briquets. The average daily output in November reached the highest figure recorded since pre-war times. The production of bituminous coal in German Upper Silesia was 776,626 tons or 32,359 tons per day, of which 387,269 tons were shipped to the interior of Germany.

More Stability at Hampton Roads

Business shows signs of improvement, with heavier demand and an increase in supplies at tide. The tone of the market is decidedly healthier than at any time for several weeks.

Coastwise movement took a boom last week, while the bunker trade held up well. There was no foreign business, the higher prices having placed that further from the range of possibility. Some improvement in the car situation was felt.

United States November Coal Exports

	Gross Tons— Nov., 1921	Nov., 1922
Bituminous coal:		
By rail to:		
Canada	890,691	1,562,983
Mexico	8,702	4,683
Total	899,393	1,567,666
By vessel to:		
British West Indies	7,659	594
Other West Indies	12,452	2,937
Cuba	28,014	34,973
Panama	9,627	9,622
Total	57,752	48,126
Italy	47,897	.....
Other European	3,720	.....
Total Europe	51,617	.....
Argentina	26,943	.....
Brazil	21,226	.....
Total South America	48,169	.....
Egypt	10,320	.....
French Africa	6,504	.....
Other Countries	5,051	2,245
Total bituminous exports	1,078,806	1,618,037
Total anthracite exports	329,380	440,208
Total coke exports	30,347	38,397

November Exports, by Customs Districts

	Gross Tons— Anthracite	Bituminous	Coke
Maine and New Hampshire	158	156	351
Vermont	1,366	947	1,048
St. Lawrence	143,665	162,985	1,064
Rochester	94,714	104,061	.....
Buffalo	174,636	293,113	24,576
New York	7,148	725	204
Philadelphia	6,652	16,563	1,960
Maryland	.....	2,054	.....
Virginia	.....	26,212	.....
South Carolina	.....	4,845	.....
Mobile	.....	224	97
New Orleans	.....	634	50
San Antonio	248	46	.....
El Paso	91	2,401	.....
San Diego	3	9	.....
Arizona	72	2,022	4,957
San Francisco	.....	9	13
Washington	.....	3,276	.....
Dakota	473	1,727	1,030
Duluth & Superior	123	4,653	21
Michigan	.....	16,494	2,105
Ohio	10,819	974,881	814
Florida	.....	.....	107
Massachusetts	10	.....	.....
Connecticut	30	.....	.....
Total	440,208	1,618,037	38,367

British Coal Exports in November

Country	Gross Tons 1920	1921	1922
Russia	6,728	26,691	50,708
Sweden	47,357	190,296	342,188
Norway	20,757	85,604	148,739
Denmark	35,041	185,238	259,249
Germany	.....	99,610	735,153
Netherlands	15,554	237,827	774,332
Belgium	7,471	119,099	517,432
France	744,521	1,033,986	1,384,063
Portugal	38,468	51,021	56,109
Azores and Madeira	.....	.....	2,204
Spain	30,795	111,779	151,169
Canary Islands	.....	34,600	46,961
Italy	183,364	497,067	593,615
Austria-Hungary	1,410	.....	.....
Greece	.....	19,984	56,360
Algeria	15,730	54,213	116,295
French W. Africa	7,317	4,402	16,707
Portuguese W. Africa	4,522	13,677	9,908
Chile	9	8,065	4,438
Brazil	6,264	52,285	82,793
Uruguay	.....	37,459	43,724
Argentine Republic	10,629	94,137	191,851
Channel Islands	9,244	14,471	16,680
Gibraltar	70,730	42,756	69,608
Malta	18,306	13,946	27,455
Egypt	42,908	221,936	158,491
Anglo-Egypt'n Sudan	.....	162	.....
Aden and Depend	.....	4,495	20,923
British India	14	104,086	56,653
Ceylon	.....	23,361	18,426
Other countries	43,590	211,611	618,524
Total, November	1,360,724	3,593,864	6,570,758
Total, October	1,417,498	3,405,972	6,196,411

QUANTITY AND VALUE

	Gross Tons— November	1st 11 Mos.
1920	1,360,724	22,629,777
1921	3,593,864	20,351,390
1922	6,570,758	58,243,742
	Value— November	1st 11 Mos.
1920	£5,681,484	£90,282,450
1921	4,878,019	37,585,637
1922	7,433,280	65,836,846

Pier and Bunker Prices, Gross Tons

PIERS

	Dec. 30	Jan. 6
Pool 9, New York		$9.00@$9.25
Pool 10, New York	$8.75@$9.25	*8.35@ 8.75*
Pool 11, New York	8.15@ 8.50	*8.00@ 8.25*
Pool, 9, Philadelphia	8.35@ 8.50	**8.50@ 9.00**
Pool 10, Philadelphia	7.90@ 8.00	**7.90@ 8.15**
Pool 11, Philadelphia	7.25@ 8.50	*7.30@ 7.65*
Pool 1, Hamp. Roads	7.50@ 8.00	**8.25@ 8.75**
Pools 5-6-7 Hamp. Rds.	7.25@ 8.00	**8.00**
Pool 2, Hamp. Rds.	7.50@ 8.00	**8.25@ 8.75**

BUNKERS

	Dec. 30	Jan. 6
Pool 9, New York		$9.40@$9.65
Pool 10, New York	$9.00@$9.50	*8.80@ 9.15*
Pool 11, New York	8.40@ 8.75	*8.40@ 8.70*
Pool 9, Philadelphia	8.60@ 8.90	**8.70@ 9.20**
Pool 10, Philadelphia	8.30@ 8.50	**8.35@ 8.60**
Pool 11, Philadelphia	7.50@ 7.75	**7.60@ 7.80**
Pool 1, Hamp. Rds.	7.50@ 8.00	**8.50**
Pool 2, Hamp. Rds.	7.50@ 8.00	**8.50**
Welsh, Gibraltar	38s. f.o.b.	38s. f.o.b.
Welsh, Rio de Janeiro	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Welsh, Lisbon	50s. f.o.b.	50s. f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa	42s. t.i.b.	42s. t.i.b.
Welsh, Algiers	38s. f.o.b.	38s. f.o.b.
Welsh, Pernambuco	65s. f.o.b.	65s. f.o.b.
Welsh, Bahia	65s. f.o.b.	65s. f.o.b.
Welsh, Madeira	40s. 6d. f.a.s.	40s. 6d. f.a.s.
Welsh, Teneriffe	38s. 6d. f.a.s.	38s. 6d. f.a.s.
Welsh, Malta	41s. f.o.b.	41s. f.o.b.
Welsh, Las Palmas	38s. 6d. f.a.s.	38s. 6d. f.a.s.
Welsh, Naples	39s. 3d. f.o.b.	39s. 3d. f.o.b.
Welsh, Rosario	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore	50s. t.i.b.	50s. t.i.b.
Welsh, Constantinople	50s. f.o.b.	50s. f.o.b.
Welsh, St. Michaels	50s. t.i.b.	50s. t.i.b.
Welsh, Port Said	49s. f.o.b.	49s. f.o.b.
Welsh, Oran	38s. f.o.b.	38s. f.o.b.
Welsh, Fayal	50s. t.i.b.	50s. t.i.b.
Welsh, Dakar	42s. 6d. f.o.b.	42s. 6d. f.o.b.
Welsh, St. Vincent	42s. f.a.s.	42s. f.a.s.
Welsh, Montevideo	50s. f.o.b.	50s. f.o.b.
Welsh, Alexandria	42s. f.o.b.	42s. f.o.b.

Current Quotations British Coal f.o.b. Port, Gross Tons

Foreign Quotations by Cable to *Coal Age*

Cardiff:	Dec. 30	Jan. 6†
Admiralty, large	28s.@28s.6d.	28s.@28s.6d.
Steam, smalls	18s.@19s.	*17s.@17s.6d.*
Newcastle:		
Best steams	25s.	*24s.@25s.*
Best gas	25s.	*24s.6d.*
Best bunkers	22s.@23s.	**22s.6d.@23s.6d.**

† Advances over previous week shown in heavy type; declines in *italics*.

North Atlantic

Prices Rally as Shortage Of Cars Quickly Reappears

Accumulation of Empties Over Holidays, Accompanied by Price Drop, Is of Short Duration—Loads Move Slowly —Good Grades Scarce.

After a temporary betterment, due to the accumulation over the holidays, the car supply has again fallen off and empties are as scarce as they were before Christmas. Prices dropped with the heavier loadings but rallied quickly with the renewed car shortage. Movement of loads is slow and good grades are hard to obtain. A feeling of hesitancy has slowed the demand somewhat, although the market could easily absorb a much larger tonnage than is offering.

The domestic market is very active. Good screened coals are well sold up and the shortage is responsible for higher prices.

CENTRAL PENNSYLVANIA

Prices along the Pennsylvania range as follows: Pool 10, $4.50@$5.25; Pool 11, $4.50@$4.75; Pool 9, $5.50@$6.25; Pool 71, $6.50@$7.50. On the New York Central, Pool 11 is $4.50; Pool 10, $4.75 @$5.25; Pool 71, $6.50@$7.

There was a fair distribution of cars on the day following New Years, amounting to 30 per cent of the Pennsylvania's Cresson division but later in the week it dropped to 15 per cent. On the New York Central a 100 per cent distribution at the beginning of the week dropped to 50 per cent later.

NEW YORK

Demand was not so strong last week and prices declined slightly. Buyers were about but simply asking questions.

Poor car supply did not appear to cause any increase in buying although many mines did not work more than half time. Reports as of Jan. 5 showed 3,170 cars at the local terminals as against 2,679 cars on Dec. 29. However, most of this was Pool 11. There was nothing better than Pool 10 coal for the spot buyer and very little of that. Most of the coal was on order.

British coal is arriving here in increasing tonnage. Two cargoes reached port early last week, one consigned to a large railroad. Large tonnages have been contracted for delivery during this and next month. Quotations at the end of the last week for Admiralty coal ranged $8.50@$9 c.i.f., but as freight rates were gradually increasing it was predicted that coal quotations would also advance.

An embargo against shipments of all kinds of freight including bituminous coal, from its connections, was placed by the New York, New Haven & Hartford Railroad Co. late in the week.

Coke and screened coal are in heavy demand. The latter is sold up in most quarters. High-volatile coals were quoted $4@$5, according to grade; gas coals, $3.50@$3.75, and coke, $9@$9.50, all f.o.b. mine. Pier quotations on high-volatile coals ranged $7.75@$8.25.

PHILADELPHIA

Spot coal continues difficult to get, and movement is somewhat slow even after being loaded, and all of this is in the face of unimpeded rail conditions. Most shippers now are spending their greatest efforts in getting old orders off the books and the coal to destination. Operators on railroad fuel are mostly able to make full time, which is quite satisfactory, although prices are under the market. Concerns who have contracts, particularly the large users, report fairly good shipments on their account, but of course not up to requirements, and all of them, without exception, are using a fair amount of stock tonnage.

The demand, of course, continues strong, but in some ways considerable of the edge seems to be worn off, consumers probably having gotten over their first flurry of excitement.

Some of the less desirable coals have only been slightly affected as to price recently. It should be borne in mind, however, that while high prices are quoted for market coals, there is actually only a minimum of the production selling at these prices, by far the greater proportion going on contracts and orders entered long ago at price of $3.75@$4.25, and much rail fuel at less than this.

UPPER POTOMAC

There was a decline in production during the final week of 1922, due in large measure to the holiday vacation of miners. Otherwise it is probable that production would have been on a larger scale than usual. The most noticeable improvement is observed in the Georges Creek region. Producers are besieged with inquiries.

BALTIMORE

Immediately after the holiday period the railroads were able to deliver a much better supply of cars to the mines. A price drop of about 50c. came during the past week. At this writing, however, the car supply has gone back almost to the conditions existing just before the holidays and the range of prices has returned to the former high level.

An incident of the last week is quite interesting. Certain interests here secured control of a mine with coal unpledged, and efforts were made to get a number of plants to agree to take a certain tonnage in box cars. The inducement was the offer of the coal at about $1 below the average market price. At last accounts it was reported that not much interest was being shown in the endeavor. Of course, Baltimore consumers have not been educated to the use of box cars for fuel delivered, nevertheless, had there been a serious shortage of fuel there is no doubt that the coal would have been taken up as quickly as offered under such a plan.

Revised and complete figures of the imports and exports of Baltimore during 1922 show a decrease of over 1,300,000 tons in the amount of fuel shipped to foreign countries and Porto Rico as compared with the activities of 1921. In the year 1921, however, a large amount of coal went out of this port to take care of loss through the English strike, while in 1922 the shoe was on the other foot. In 1922 35 vessels loaded cargoes totaling 100,708 tons on export. Eleven of these ships took 8,254 tons to Porto Rico, making actual export figures 92,454 tons. Fourteen of the ships with cargo coal took an additional 6,410 tons for bunkers.

FAIRMONT

Although the loss of a day on Christmas tended to curtail production, yet an accumulation of cars over Sunday and Monday made it possible to load an unusually large tonnage when mines did resume. There was a great deal more activity than usual during the holiday period, from a market standpoint. Under this stimulus, which it was not possible to meet, prices hardened somewhat.

South

BIRMINGHAM

Operations are nearing normal activity following the holidays, though labor has not yet returned in full force. Car supply has been better than prior to Christmas, but the more liberal distribution has been due in some measure to the fact that mines were not operating normally, on account of shortage or layoff of labor, and it remains to be seen whether or not there is to be any net improvement in the number of cars available when production reaches the normal stride.

The market is rather quiet for both commercial and domestic fuel, but inquiry is gradually picking up and improved trade requirements are expected. The outlook for a better year in the coal industry is much more promising than it was with the advent of 1922, economic and industrial conditions being on a much more satisfactory basis and there should be a much greater demand for coal during this year.

ALABAMA MINE QUOTATIONS

	Mine Run	Washed	Lump
Big Seam...	$2.50	$2.50@$2.75	$3.45@$4.45
Carbon Hill	2.50@2.75	2.50@ 3.00	4.45
Black Creek and Cahaba..	3.00@3.25	3.00@ 3.50	5.20
Pratt.....	2.75@3.00	.....	.....
Corona.....	2.75@3.00	3.00@ 3.75	4.55@ 5.00

VIRGINIA

The Christmas holidays made a difference in the volume of coal mined but brought no diminution of demand. Even before the holiday season proper was ushered in mines began to feel the effect of smaller work crews. Owing to the limited car supply many companies increased the tonnage of coal for coking purposes. At the close of the year there was a strong demand at Tidewater as well as in Inland markets, with prices on a somewhat higher level.

Anthracite

Retail Domestic Stocks Low, Screened Soft Coal Booms

Transportation Difficulties Intensified by Stormy Weather—Supply of Substitute Tonnage Also Falls—Independent Prices Up to $12 on Fair List—Canadian Buyers Offer Premiums.

Stormy weather has added to transportation difficulties. The movement from the mines has been slowed down and retail distribution has reduced yard supplies of domestic sizes to almost nothing. Even substitute tonnage has been lowered and producers of screened grades of soft coal are reaping a harvest. Anthracite steam sizes are moving well, with buckwheat the most active, as it is growing in favor as a substitute for the larger coals.

Independent producers who sold in excess of $9.25 have had their coals scheduled in a fair-price list by the Pennsylvania Fuel Commission. These prices ran up to $12, f.o.b. mines, but it is understood that Canadian buyers are offering attractive premiums for prompt shipment and in some cases are paying cash for the coal before it is loaded.

BOSTON

The outlook here is by no means encouraging. Heavy weather and low temperatures have interrupted shipments and sharpened the demand, and as yet there is little relief in sight. Retail dealers are struggling with the situation as best they can with the means at hand, but each week shows increasing amounts of bituminous and coke distributed to replace anthracite. More than likely it is a factor that will arise to plague the hard-coal operators later on.

At wholesale there is little news. The trade is suffering from light holiday production, and while reports last week were favorable, the tonnage actually coming forward is not enough really to affect the situation. There are those who feel that the local situation is the worst we have experienced since 1902.

NEW YORK

Storms and colder weather added to the troubles of the trade last week. Demand increased correspondingly but dealers were in no way able to meet it. Retail yards are practically clear of the domestic sizes and about the only coal available is bituminous and buckwheat No. 1. The use of substitutes is becoming more general and users are not apt to become so panicky when coal becomes short as heretofore.

The one redeeming feature of the situation was the offering of cargo lots of egg and pea in the local harbor. While the quotations were high the offering was taken to indicate that anthracite was more plentiful, and that the reports from the State Fuel Administration that New York's shortage of coal was being overcome were true.

House owners report considerable success with bituminous and many say they propose continuing its use. In some quarters it is predicted that anthracite operators will find it difficult to regain their entire trade.

Company coals are being widely distributed, and most detail dealers are picking up whatever independent product they can, but are not willing to pay the higher prices quoted, some ranging as high as $15.

A stray cargo of egg was reported as being offered during the past week at $17.50, alongside and a cargo of pea was likewise offered at $14.25, alongside. Washery nut was quoted around $10.50 f.o.b. mine.

Buckwheat No. 1 was the most active of the steam coals. It was quoted at $8.50@$8.75, alongside. Rice and barley were not moving rapidly and only the better grades were bringing company circular.

BUFFALO

The best that can be said is that there is rather more coal on hand than there was, but the improvement is not large and it is not likely to be until spring. The supply of natural gas is good and though it costs 60c. per thousand feet, twice as much as it used to, it has to go. It is better than most of the substitutes are.

Some consumers express themselves as puzzled because they are charged $6 or more for some coal than they are for another, not understanding that the independent premium is about that much. It now sells for about $15 at the mines and then Buffalo pays $3.28 in freight and about $2 for local handling and 50c.@75c. for housing it. Fuel is fuel this winter, unless one learns to use buckwheat at $9 delivered to the curb, then it is easy.

PHILADELPHIA

Demand is tempered considerably by the mild weather. The dealers fully realize that it will only take a drop of 10 degrees to create a frantic rush again. As it is now, retail office forces are being badly shaken up due to the strain of the constant efforts of the consumer to get coal. Another element serving to increase their troubles is the influential customer who could have laid in his entire supply early in the spring, but only took enough to carry over the year end, in anticipation of a price reduction. Numbers of these people are now seeking through various unusual channels to get supplied with additional fuel.

Production has been badly hampered by the holidays and this is now showing in the reduced shipments to the dealers. On the other hand there has been a copious rainfall in the region, which has greatly helped a situation that had become so serious as to cause an occasional shutting down.

Retail prices are higher in a few instances, especially in view of an increase by a large independent shipper to $10.75. As a result of this there are more dealers compelled to ask $16. Buckwheat is $9, although the consumer still balks at taking it. Coke of certain grades is moving well at $13@$17 a ton, dealers getting voluntary orders for it, although the supply is quite limited.

Steam coals have held all their recent gains, and even show some additional strength. The companies are not anxious for additional buckwheat orders, while the independents are able to get premiums of 50c.@$1. Rice is in good demand, and barley shows signs of becoming scarce.

BALTIMORE

Hard coal dealers report that the orders on their books are still far in excess of their ability to deliver and efforts are still being devoted to giving one- and two-ton lots to customers who have run out of coal. A somewhat better run of hard coal to Baltimore is noted, however.

The trade is hopeful that January will show an improvement over December of 1922, when in the neighborhood of 1,350 cars were received. The receipts for October, November and December totaled slightly less than 4,100 cars.

Coke

CONNELLSVILLE

Demand from the East for coke for domestic distribution has practically ceased. The buyers are now receiving heavy shipments against their recent purchases, and it remains to be seen how the coke will be bought by the domestic consumers, also whether it makes a favorable impression. No coke has been pressing on the market but with the decrease in buying furnace coke has eased off about 50c. Furnace coke is now $8.50@$9 and foundry $9@$9.50.

All blast furnaces that had contracts expiring Dec. 31 appear to have covered for first quarter, the price generally being $7@$7.25, though it is possible $7.50 may have been paid in one or two instances. The spot market had declined to $6.50 early in December and furnaces had expected to buy for first quarter at that price or less, but the bulge resulting from Eastern buying for domestic use interfered with the program.

The Courier reports production during the week ended Dec. 30 at 117,300 tons by the furnace ovens, and 75,110 tons by the merchant ovens, a total of 192,410 tons, a decrease of 12,120 tons. The decrease is less than usual for Christmas week. Total production in 1922 was 5,675.000 tons, against 3,572,417 tons in 1921 and 21,654,502 tons in 1916, the record year.

BUFFALO

Coke is hard to get, but it is not quite as scarce as it was. Prices are stiff, considerably above standard anthracite. Jobbers quote foundry at the ovens at $11, furnace at $9@$9.50. The local byproduct ovens are running strong, but they have little or none for the house trade.

Chicago and Midwest

Steam Demand Remains Slow with No Stocking

Uncertainty Over Labor Situation Drives Nobody to Stock Much — Domestic Trade Continues Good and Car Supply Fair in Spots — Eastern Shipments Lag.

The Midwestern market is spotted just now on steam coals. In the southeastern part of the territory the Kentucky and southern Indiana fields are finding industrial demand picking up now that the inventory period is about over and holiday let-downs are past, but around Chicago and St. Louis small sizes move sluggishly. There is no stocking to speak of there. In the latter regions car supply has been ragged, one field getting up to 50 per cent running time and another dropping to little better than one day a week. Steam prices have not improved anywhere but instead, are showing a slight tendency to slip.

Domestic, however, is running strong, except that nobody is trying to buy big lots. The uncertainty about the labor situation is puzzling most everybody though of course this has less disturbing effect on dealers than on big industrials.

ST. LOUIS

A little colder weather has stimulated the market some, but it is usually for the cheaper grades and in small quantities for domestic use. A little high-grade coal is moving in, such as Carterville, and the little anthracite that gets here finds a ready market. Coke is scarce and hard to get.

Country domestic is quiet and usually calls for the cheapest grades of Standard. Locally, steam wagonload is good. Carload is slow, and the same condition covers the country steam, although a fairly good tonnage is moving to the North and Northwest. There have been no changes in prices.

LOUISVILLE

According to local jobbers and producers the gas plants represent the best buyers at the present time, there having been some good tonnage placed, moving toward Detroit, Cleveland and north of the Ohio River. Southern movement has been slack, due to mild weather principally. Utility buying is better and it is claimed that there is some stocking demand developing, now that stocks won't go into 1922 inventory, and in view of the fact that some of the big buyers are fairly well satisfied with steam prices, and figure that they had better play safe and stock some coal, as insurance against any strikes in the spring.

Railroad buying is slow, and retail buying is on a hand-to-mouth basis, but fair as a whole. General industrial demand is good and increasing, since business is on the increase, and not suffering the usual big slump over inventory period. Implement, wagon and auto plants are in the list of active consumers. Eastern Kentucky car supply started off badly the first part of the week, but is reported to have shown improvement.

Prospects are said to point to better car supply as a result of open weather, and cleaning up of terminals by railroads during the holidays. Shops are also functioning better, and records of car and locomotive repairs show a good volume of work going through the shops.

Locally jobbers and operators are quoting mine prices in eastern Kentucky at $6.25@$7 on lump; $3.50@$4 on gas and steam mine run; and $3.25@$3.50 on screenings. Western Kentucky prices are $4.25@$4.75 on lump; $2.50@$3 on mine run; and $2@$2.50 on screenings.

INDIANAPOLIS

Continued mild weather to what was expected has kept down demand, according to both Indiana operators and dealers in Indianapolis. So low has the demand been that retailers have cut off from fifty to seventy-five cents per ton on their prices and operators are making proportionate concessions. Steam coal is plentiful partly because many plants curtailed operations during the holidays. The car situation has improved to about 50 per cent. There is as yet no nervousness on the part of either industries or domestic consumers about trouble in the spring. There are practically no reserves in the state and industries haven't time now to build up big surpluses before April 1, operators say.

WESTERN KENTUCKY

Prices in the western Kentucky field are fluctuating considerably this week with car supply, which was very poor at the start of the week, but which has shown material improvement. Industrial demand is generally better. Utility buying is also good, but volume from railroads is only fair. There is every indication of a better stocking movement. The present market looks fairly good in view of the hand-to-mouth demand and car supply.

Reports show that during December car supply was below 30 per cent for the month, records showing the Illinois Central to have supplied 29.8 per cent; while on the Louisville & Nashville, only 22.4 per cent was supplied on the Henderson division, and 23 per cent on the O. & N. division, which resulted in a stronger market just before the holidays. Indications are for a better supply in January.

Prices at the mines show a considerable range, lump being $4.25@$4.75, with the bulk of movement at around $4.50. Mine run is $2.50@$3.25, mostly $2.50@$2.75. Screenings are quoted all the way from $2 for pea and slack to $2.50 for nut and slack, with bulk of sales at $2@$2.25.

CHICAGO

A slight softening of the market for steam sizes was noticeable during the past week. Improvement of the car situation with continued open weather during most of the week put enough coal on the market to give big steam buyers just the opportunity they constantly watch for. Domestic coal of every size remained in good demand and the result was screenings grew a trifle numerous. This naturally edged the screenings market down but the drop was small in most cases. Fifth Vein Indiana, for instance went off a quarter to $2@$2.25 and not much Fourth Vein sold over $2.50 though brokers contended the market ran up to $2.75 as it did the week before. Southern Illinois screenings held up to $2.75@$3.

Eastern coals continue to have a hard time getting through Cincinnati and Toledo on their way west. This keeps down the volume of West Virginia high-volatile as well as smokeless that reaches here. Eastern Kentucky undergoes some of the same handicaps but car supply is so short there that the effect is not so deeply felt around here. Elkhorn gas coal in 2-in. lump size brings $6.50 and 2 x 4-in. egg, $6. What little mine run is traded here moves at $4@$4.25. Harlan field quotations are about the same. From West Virginia it is noticeable around here that box cars are coming into use wherever coal can be disposed of in that kind of equipment at a price 50c.@$1 under the quotation for open-ton shipment.

SOUTHERN ILLINOIS

Car shortage started this week once again to make things interesting in the Carterville, Du Quoin and Jackson country fields and practically all roads are affected. Movement is slowing up and with cold weather prevailing there is an increased demand for everything. There seems to be nothing unbilled on track. Mines are getting from two to three days a week with the usual exceptions. Steam sizes show improvement. Prices on Du Quoin and Jackson county are $5@$5.50 for lump, egg and nut, with screenings at about $3 and steam nut ranging $4@$4.50.

Improvement is noted in the Mt. Olive field in the movement of steam and domestic, chiefly to the North and Northwest. The railroad tonnage in this field has been good. Steam is better than in the other districts. Prices range from $4 on domestic at St. Louis to $4.50 for country districts, with screenings at $2.25 and nut from $2.50 up. Car supply is fair, averaging three days a week.

The Standard district is tied up again on account of no cars. Conditions are extremely bad on the Illinois Central, the B. & O., Pennsylvania, and the L. & N. The Mobile & Ohio is getting on a par with the others too. Some of the mines average but one day a week. Prices are not good. Six-inch lump and 3 x 6 egg range $4@$4.25. Two-inch lump ranges $3@$3.25, with steam sizes, $2.50@$2.75 and screenings at $1.75@$2.

Railroad tonnage fair, but conditions generally are not good with the poor working time and low prices.

Eastern Inland

Empties Scarce Following Spurt of Heavier Loading

Holiday Idleness Brought Temporary Accumulation of Cars—Spot Buying Necessary to Eke Out Current Needs—Domestic Demand Unabated —Steam Prices Stiffen.

Holiday idleness provided an accumulation of cars which enabled mines to make inroads on their orders. Following this brief period of heavier loading, however, has come a return of the car shortage and empties are now as scarce as before Christmas.

Contract deliveries are good, under existing circumstances, but consumers must eke out their current needs with spot purchases. Railroads and other large users are taking stock coal and the offerings on the spot market are very meager. Domestic demand continues unabated and prices for steam grades as well have stiffened further during the week.

CLEVELAND

Prices of Ohio coal, which are being substituted to a large extent for West Virginia smokeless, semi-smokeless and anthracite, have been advanced 10c.@ 20c. This has been due largely to severe weather, which has affected transportation conditions. The railroads are taking large tonnages in this territory.

Public utilities and other large consumers are planning to build up storage piles this month and will continue to buy through February and March. The Cleveland Electric Illuminating Co., which supplies heat to a large number of business blocks and apartment houses and furnishes power for light manufacturing and street cars, has 75,000 tons in its yards, enough to last twenty-eight days. The present stock is a little larger than it has been recently. Homes, apartments and industrial concerns in certain parts of the city have been deprived of lights and electric power when a partial shutdown of the municipal light plant has been forced several times through inferior grades of coal finding its way into the plant's boilers.

Pocahontas coal is camparatively scarce in this market. Shoveled lump is delivered for around $13 a ton, and some mine run also is available. The price asked for this grade is $11.50 @$12.

EASTERN OHIO

During the last week of 1922, operations were accelerated somewhat by an improved car supply. Output was 290,000 tons, representing 56 per cent of potential capacity for the five-day week. Increase over the preceding week was 25,000 tons. Cumulative statistics covering production for 1922 show an aggregate output of 11,192,000 tons, or 36 per cent of potential capacity, based on railroad ratings.

At the current rate of operations and the comparatively small quantities of free coal available, there is a ready market for all that is offered and prices are stiffer. The railroads have only moderate amounts of reserve fuel on hand, and public utilities and other large consumers are doing some storing. However, the rank and file of industry continues to buy in a hand-to-mouth fashion and stock piles are at a minimum. Weather conditions have resulted in a constant demand from domestic consumers upon retailers and operators and jobbers report activity in that quarter.

The City of Cleveland recently opened bids on 40,000 tons of nut and slack for the waterworks. Lowest bid came from the Valley Camp Coal Co., Cleveland, for No. 8, at $2.90, contract running for six months, freight rate $1.70 per ton. Next lowest bid was from a middle district operator, offering No. 6 at $3.22, freight rate $1.45 per ton.

Receipts of bituminous coal at Cleveland were the largest on record during the last week of 1922, and local terminals report slow deliveries because of bunched arrivals and inability of several large receivers to handle. Total receipts were 3,332 cars, or about 177,000 tons. Of the total, 2,659 cars were consigned to industries and 673 cars to retail yards.

BUFFALO

Trading is not really brisk, although the snow storm, added to the car shortage, stiffened prices materially, but they are already dropping off again. Some of the shippers are trying to maintain the advance until there is a stir in anticipation of trouble in April, but as a rule this is looked on as too far away.

The disposition of operators to urge more and more coal on the market is a discouraging feature of the market. Jobbers make no secret of their disapproval of the tendency.

All quotations are subject to individual variations, as follows: $5@$5.50 for Youghiogheny gas lump; $4.75@$5 for Pittsburgh and No. 8 steam lump; $3.75@$4.25 for all mine run, and $3.25 @$3.75 for slack, adding $2.09 to Allegheny Valley and $2.24 to other coals for freight.

PITTSBURGH

The market is definitely quotable at a slightly higher average level. It has now been strengthening for three weeks.

Cars continue in short supply and there is much irregularity, both in the supply on a given division from day to day and in the supply comparing one division with another. Consumers are receiving moderately regular shipments from their usual sources of supply, but many are in the market from day to day for extra tonnages, making a fairly large volume of spot trading. To what extent consumers are stocking cannot be determined as buyers are indisposed to discuss such matters. The common assumption is that there is a good bit of stocking.

The latest gossip indicates the probability of a disagreement on April 1 with the U.M.W.

The Pittsburgh district market is quotable as follows: Steam mine run, $3.50@$3.75; slack, $3@$3.25; gas mine run, $3.85@$4; gas slack, $3@$3.50; domestic 1¼-in. lump, $4.50@$5. Some nut is being produced for the Eastern trade, and brings high prices, up to about $6.

NORTHERN PANHANDLE

Embargoes and congestion are still interfering to a great extent with the movement. There is a heavy demand for prepared grades and for steam coal, with the prepared sizes hovering around the $4.50-mark. Mine run prices, too, had stiffened somewhat.

DETROIT

Slow demand continues a prominent characteristic of the market. Offerings create little interest among buyers. While some sales are being made the business is mainly of an irregular nature involving only small amounts.

The closing of navigation of the Lakes has not brought the increase in shipments to Detroit that some of the buyers had expected. In fact, some of the jobbers say less coal is coming to Detroit than a month ago. One of the details apparently overlooked by the buyers, is the longer haul now involved, which requires the use of a large number of cars. Car supply also is reduced by the demands from other lines of industry.

Very little free coal is to be found on track. The larger proportion of the receipts comes from Ohio. Hocking lump is $5.25@$5.50; egg, $4.75@$5; run of mine, $3; nut, pea and slack, $2.75@ $2.90. Three-quarter lump, Pittsburgh No. 8. is $4.50; run of mine, $3.25; slack, $3. Lump from West Virginia or Kentucky is $5.50, mine run, $3.25; slack $3. Smokeless continues scarce with lump and egg about $8 and mine run and slack, $5.75@$6.

COLUMBUS

A stronger demand has developed since the holiday season. This includes all steam sizes as well as domestic grades. Prices have strengthened materially and indications point to a rather stiff market for the remainder of the month.

Hocking, Pomeroy and Cambridge lump are good sellers and there is also a good tonnage coming from West Virginia and Kentucky. Pocahontas is still scarce. Retail prices are strong but consumers are buying more liberally.

Steam business is showing considerable firmness. Large consumers are buying better as there is a growing likelihood of a suspension about April 1. Railroads and utilities are taking larger orders while the small manufacturers are showing a tendency to come into the market.

Production is somewhat heavier, due to better car supply, caused by the accumulation of empties after the two holidays. The Hocking Valley is producing about 40 per cent while the same is reported from Pomeroy and Cambridge. Eastern Ohio has been near the 50 per cent mark.

Northwest

Upper States So Used to Worrying They Are Callous

End of Fuel Administration Control Over Supply Is a Relief, Even Though Hard Coal Will Exhaust By Feb. 1 And Free Bituminous Totals Only 700,000 Tons.

The Northwest is breathing a sigh of relief now that the fuel administration has ceased to have charge of supplying that region with coal. The fact that there is only enough anthracite to last in dealers' yards to Feb. 1 is such common knowledge now that the people are getting used to it and are not worrying much, especially since the weather for a week has been mild.

The confidence felt in rail shippers to supply the region from the South all through the winter has removed much uneasiness over soft coal, of which it is estimated there is now only about 700,000 tons free at the docks. Shipments inland from the docks have been so tremendously heavy ever since the strike that the country has a little more bituminous on hand than is usual.

DULUTH

Shipments from docks during December ran pretty nearly to the high-water mark. In all 23,985 cars went out as against 13,444 in the same month in 1921. In November 20,638 cars were shipped.

The total number for the year shows how much more freely the Northwest is taking coal this season than last. During 1921 the total car shipment was 161,322 and in 1922 in all 245,683 cars were shipped. Until June in 1921 the average car shipment from the docks was around 5,000 to 8,000 monthly while this year the poorest month, April, showed 9,000 cars and the peak was reached in September with 26,000 cars. The demand has been steady, chiefly because many feared a shortage.

At the end of last week, a spell of mild weather caused a drop in selling orders, but coal still continues to go out in a steady stream on past orders. Anthracite is in demand everywhere. Calls come for coal from all Inland points, and there seems to be real suffering. The policy of reserving hard coal for those who have magazine stoves for heating still continues. Pocahontas is a feature of the market. It has climbed from $11.50 to $13 and supply is short. Coke is $12 and briquets, $10.50.

It is estimated that there are 700,000 tons of bituminous left free. If this estimate is anyway near correct, it would seem to indicate that the slightest slip-up in the all-rail delivery plans for the southern part of the state would cause a shortage. In fact, there will be no coal left on the dock for a surety when navigation opens, but there may be no want by that time.

MINNEAPOLIS

The coal trade is compelled to get along as best it can without the aid or hindrance of the fuel administration, which has wound up its work.

The hard coal situation is practically one of exhaustion. Less than half the reasonable needs of the Northwest were received up to the close of the extended period of navigation on the Great Lakes. Despite all economies through the open fall and early winter, and the use of other grades, the 550,000 tons received will not last through the season. In fact, the wholesale stocks are exhausted now and are all in retail hands. Retailers are distributing them steadily, and many will be entirely out of sizes very soon. Feb. 1 will probably see many retail concerns practically without hard coal.

The soft coal situation is steady, though without a great deal of support. The mild weather took the edge off buying, after the two weeks of cold weather braced the market sharply. As long as mild weather prevails, there will be no real support to the market. On the other hand, it is unlikely to go soft, with strong markets reported in other centers, and shipments several weeks behind. That will prevent any excess coal being sent into this market. It is this practice that has generally upset things here. With that removed, there will be a much steadier soft coal market.

MILWAUKEE

There is a good demand and dealers are kept busy filling urgent orders, as few consumers entered the winter with anything like reasonable supplies. Anthracite is being distributed in small lots. There have been some complaints of discrimination, but the State Fuel Commission is satisfied that dealers are acting fairly both to the city and country trade, notwithstanding there is an advantage to them of 75c. per ton in favor of dumping into city trucks as against loading cars.

Just when the shortage of anthracite will become acute is problematical, but it is admitted that severe cold weather will mean hardship in the country. To avoid such a condition, the state authorities are considering the commandeering of all anthracite on the docks at Milwaukee.

The car situation is wretched, and country shipments are two or three weeks behind. Industrial plants are showing an inclination to re-establish storage piles, now that it is certain that coal will not be any cheaper this winter. Illinois and Indiana screenings are still scarce and firm. There seems to be no inclination on the part of dealers to disturb prevailing prices. Soft coal and coke are being extensively substituted for hard coal both here and in the country.

New England

More Inquiry for Spot Coal; Heavier Use of Steam Seen

Buyers Awaken to Situation—Short Car Supply and Holiday Delay Are Factors—All-Rail and Water Movement Checked, Putting Contracts Behind.

In all directions spot coal is in better request. Buyers are awakening to the current situation, and in most lines of manufactured goods there is enough better business to mean increased use of steam. Short car-supply is another governing factor and the holiday period of extremely light shipments has brought home to many consumers the delays that follow rough weather. Both all-rail and by water the movement of coal has been checked, and doubtless it will take the balance of January in most instances to catch up on contract quotas.

In Central Pennsylvania practically all grades have further advanced in price the past week. At Hampton Roads the market is also notably firmer.

Favored grades from the Cambria districts have sold up to $6 per net ton and quotations still higher are looked for in the near future. Even moderate to poor grade coals have sold recently at enhanced prices, and while a seasonable thaw and a better run of anthracite would tend to hold things down it is quite possible spot prices will reach $7 on average grades within a reasonably short time.

It is rumored here that $9.25 at the Roads has been paid for tail-ends, but an average figure on what little volume has been available for spot sale would probably be $8@$8.50 per gross ton f.o.b. vessel. Shipments latterly have been rather in favor of prepared sizes to the West, but with more inquiry at the Virginia terminals it is quite likely that the volume will increase in that direction. Practically all the factors are making only small deliveries on contracts, urging as a reason the meager output during the whole of December.

The textile manufacturers are showing more interest in the current situation. This is due partly to decreased water power, but the improvement in the market for goods is really accountable. The prolonged strike very much reduced the available supply of goods, and now with any prospect at all the cotton mills are expecting to run full during the remainder of the season.

Cincinnati Gateway

Byproduct Buyers Again Prominent in the Market

Feeling-Out Process by the Wholesalers Is Strongly Defined — More Rapid Movement of Coal Demands Caution.

After a lull of several weeks byproduct buyers are again the prominent feature of the market. They have not been bunching their purchases to the degree that was noticeable in November but their requirements have been sufficiently strongly shown to bring that type of coal back to the spread that it was enjoying over the price of steam and splints.

The transportation situation has surprised some of the astute observers. Both the C. & O. and the L. & N., through quickened movement of loads off of branch lines, have shown that accumulations have been pretty well worked out. The N. & W. is not in such good trim, which is indicated by the small shipments to Inland and Western markets. Prices west, however, were given an upward boost of proportions to start the new year off right.

CINCINNATI

The market can be said to be divided into two camps. Direct mine representatives are pretty well sold up with their coal while the jobbers and wholesalers are laying back and using a "feeling-out process" in the hope of discovering which way the prices will move. Most of the latter are taking coal on a quick turnover basis, while the former have sold on the upturn for the coming month and hoping that their judgment is correct.

Because of the better movement of steam coal prices on high-volatile run of mine have shown but little change. On the other hand, the rush of buying orders for gas and byproduct coals has sent these upward.

Producing companies changed the price on smokeless lump to contract takers to $7 the first of the year, some asking $7.50. Brokers on the other hand are asking $8@$8.50, which indicates that they still have difficulty in getting car numbers. Low-volatile run of mine, nut and screenings are stronger due to the Tidewater situation.

Retailers have made no change in the price line up but declare that any further advance in the cost of smokeless will force them to readjust.

HIGH VOLATILE FIELDS

Kanawha

As was to have been expected, production was curtailed by the holiday idleness. When the men did return to work there was a larger supply of empties, but by the end of the week the supply was exhausted. What little tonnage there was mined was consigned to Western markets, much of it for regular customers, so that production was far from keeping pace with demand.

Logan and Thacker

There was no improvement worth mentioning in the Logan district during the final days of 1922, but the lack of cars made somewhat less difference as there was a complete suspension of operations for a day or so during the holiday week. Not only were inquiries growing in volume, but producers were being pressed for early delivery, which was difficult owing to the slow movement of loads to Western points.

Northeastern Kentucky

Idleness at the mines over a period of several days gave the C. & O. a chance to accumulate cars but the supply was soon used up. With production curtailed, and with buying on a heavier scale, prices have climbed a peg or two.

LOW-VOLATILE FIELDS

New River and the Gulf

The Christmas suspension tended to restrict the output of the New River territory to some extent though it was possible to offset in part the losses so sustained by heavier loading when the miners returned to work because cars had accumulated during the several days of mine idleness. The increased supply available, however, was only temporary. Transportation and market conditions are instrumental in diverting the bulk of the output to Easten points. The movement to Tidewater is as heavy as is possible in view of curtailed production. Westward movement is retarded by rail congestion.

Had there been a full week of work in the period ended Dec. 30, it would probably have been possible for Gulf mines to increase the output a little since the Virginian is gradually getting back to a normal basis with its motive power. Most of the coal so produced is being handled to Tidewater where there is an active demand. Prices are gradually creeping upward.

Pocahontas and Tug River

The Pocahontas field had a larger production to its credit when the year closed than at any time since 1916 but the increase of 25 per cent for the year as a whole was not made possible by conditions such as obtained at the end of December. There is a heavy pressure from many sections for Pocahontas fuel, a demand greater than it is possible to supply.

Tug River production was affected by the holiday suspension though idleness did not last throughout the week and it was of course possible to load on a little larger scale once the miners were back, since cars had accumulated. There are not as many empties coming from the West, however, as are needed to take care of the demand so that an unusually large proportion of the output is going to Tidewater.

West

SALT LAKE CITY

Stocks are getting low in many local bins as a result of people not putting in a full winter's supply of coal last summer and fall. The retail price of lump five or six months ago was $9. Now it is $10. It is felt that more staple prices would be better for all concerned—operators, dealers and the public—as business would then be steady and people would not wait to see what changes in prices would be made before ordering coal. The last change, however, in this locality was unavoidable, being the result of the strike. Car supply is adequate and there is plenty of high grade labor available.

KANSAS CITY

The new year opened with little change in market conditions here. The weather has continued mild. Partially as a result of the weak domestic demand, and partially because railroad service always improves with the weather, the car situation is better. The Oklahoma and Arkansas fields, the products of which must travel farther to market than those of the Kansas field, are the greater sufferers. Kansas coal is quoted at $5.50 for lump; $5 for nut; $3.75 for mine run, and $2.50 for screenings. Arkansas semi-anthracite lump is quoted $6@$8; mine run, $3.50@$4.50; screenings $2.

DENVER

Rail service is steadily improving so that nowadays, with 60 per cent car supply in Colorado and supply running up to 75 and 76 per cent in Wyoming the Rocky Mountain fields are enabled to get out a good deal of coal. Demand remains steady for all domestic sizes and steam is picking up slightly with industrial improvement.

Many companies in this state are planning considerable property improvements for 1923, including the Producers Coal Co., which is opening a new mine in Moffat County. The Moffat, C. F. & I., Colorado-Utah, National, and Victor-American companies all have plans for extensive improvements at their various mines, so that the state may be in better position to produce a heavy output during the coming year.

Toronto

TORONTO

There is little change in Toronto market conditions, the most noticeable feature being the increasing use of substitutes for hard coal, very little of which is now coming in. Householders are largely using bituminous coal, coke and briquets, many finding it impossible to obtain anthracite. Receipts have been much below the 60 per cent of normal supply understood to be allotted to Canada and it is claimed that Ontario is credited with carloads which are merely passing through en route to the West. Cases of actual distress which occur are being looked after as much as possible. The industrial demand for bituminous shows little if any improvement.

News Items From Field and Trade

ALABAMA

The Empire Coal Co., owing extensive coal properties in Walker County and at present operating several mines in the Warrior field, will soon begin construction of a by-product plant to cost approximately $1,500,000, according to announcement of Walter Moore, president. A battery of forty or more byproduct ovens of the latest design will be built. The new ovens which will take the place of the bee-hive battery now operating at Empire mines, will be placed in close proximity to the coal supply and be so situated as to be served by the Warrior River transportation system and the newly projected branch of the L. & N. The ovens are to be ready for operation by July 1.

Edmund Ewing has resigned as superintendent of the Bessie Mine of the Sloss-Sheffield Steel & Iron Co. to become assistant to Vice-President James E. Strong, of the Alabama Co., and will be in charge of operations of coal mines, effective Jan. 1.

CALIFORNIA

For the first time in the history of the Pacific Coast the **toggle bucket is being used successfully at Los Angeles harbor** to remove coke from the holds of vessels. The new scheme is expected to revolutionize coke activities on the Pacific Coast. Heretofore coke has always been removed with shovels. With the advent of the toggle bucket and the hoist the work can be accomplished in half the usual time. The coke is not broken when unloaded with the bucket, a great improvement over the shovel method.

The Columbia Steel Corporation has sent out inquiries for equipment needed in extending its plant in Pittsburg.

COLORADO

The Champion Coal Mining Co. has incorporated at Durango with a capital of $50,000. L. D. McCormick is general manager and work will be started on a mine near here.

A wreck on the Moffat road Dec. 30 near Corona blocked the shipment of 2,500 tons of coal a day from the Victor American Fuel Co.'s mines in Routt County. These mines have up until recently worked only from two to three days a month on account of the continuous interruption of transportation service and inadequate car supply.

The Colorado Fuel & Iron Co., has opened its rail mill at Pueblo with a 75 per cent normal force re-employed. This means employment for 1,000 men in the mills and an additional 700 miners in the mines. The mills will require from 5,000 to 6,000 tons of coal a day.

The Moffat tunnel injunction suit by Jefferson County to prevent the state from issuing state bonds were denied by the Colorado Supreme Court and has been appealed to the U. S. Supreme Court. This tunnel would mean the adding of 300,000 tons production a month to the state, raising the states total to more that a million more tons a month.

CONNECTICUT

The American Coal Co., Hartford, recently increased its capital stock from $50,000 to $100,000, to be used in increasing the business facilities of the concern.

ILLINOIS

F. R. Johnson, of the **St. Louis Coke & Chemical Co.**, with plants near Granite City, recently spent some time on business for his company in Chicago. He is in charge of the raw materials department of the firm and is located in the main offices of the company in St. Louis.

The following **itinerary of the Illinois Miners' Examining Board**, has been announced by Robert M. Medill, of Springfield, Director of the Department of Mines and Minerals of Illinois: Edwardsville, Jan. 8; Harrisburg, Jan. 9; Herrin, Jan. 10; West Frankfort, Jan. 11; Duquoin, Jan. 12; Sandoval, Jan, 13; Litchfield, Jan. 15; Springfield, Jan. 16; Decatur, Jan. 17; Danville, Jan. 18; Canton, Jan. 19 and Peoria, Jan. 20.

George W. Gosnell, of Herrin, formerly county mine inspector, has been appointed by Governor Small to the position of **state mine inspector** for the 12th district, comprising Williamson and Johnson counties. He succeeds **W. L. Morgan**, of Greenville, who was recently appointed as state mining investigator. Mr. Gosnell has served several terms in the capacity of county inspector.

John J. Watt, secretary-treasurer of the Springfield subdistrict of the United Mine Workers, has announced that proceedings to **contest the re-election of Frank Farrington** as state president of the union will be instituted at once. Alleged fraud in the counting of the ballots will be the basis for the suit.

A resolution condemning President Farrington, of District No. 12, Mine Workers of America, for ordering strikers back to work on a mine at Green Ridge, on the ground that the mine was idle in violation of contract, and demanding that he state his position as to the legality or illegality of the strike, has been passed by members of Local Union No. 2897, Subdistrict No. 6.

The Willis Coal & Mining Co. of St. Louis, Mo., has filed suit in the federal court against the Mobile & Ohio R.R. to collect $140,620.18, alleged to be due for coal furnished for the two years prior to July 1, 1922. For many years this shipper and carrier were regarded almost as partners. The Willis company held for many years the contract for Mobile & Ohio fuel coal from its many mines on the Mobile & Ohio in Illinois. Competition waned and mining, it is asserted, became unprofitable at other mines on the Mobile & Ohio. The Moffatt Coal Co. of St. Louis now furnishes most of the Mobile & Ohio coal from one big mine in Illinois and other mines near Blocton, Ala.

Mine No. 18 of the C. W. & F. Coal Co., Herrin, broke a hoisting record Dec. 18, when 4,357 tons of coal were raised in eight hours, making a total of 1,381 dumps. The previous record for eight hours was 4,175 tons. An interesting feature about the record is that the employees did not set out that day to make a record but owing to the fact that all of them did exceptionally good work, they were able to make this remarkable lift of coal. George Parson is the engineer at this mine; Fred Hauck, superintendent and T. F. Bailey, mine manager.

INDIANA

A "right-to-work" bill aimed at unionism in Indiana will be filed with the next state Legislature, the first bill of its kind the state has ever seen. The measure would make it unlawful for any person or persons acting singly or jointly with another or others, by means of any kind of force, threats, coercion, intimidation or violence, to cause or induce or attempt to cause or induce any person engaged in a lawful occupation to quit such employment, or to refuse or decline to accept or begin a lawful employment." Punishment for a violation of the act would be fixed at imprisonment of not less than sixty days nor more than two years and in addition a fine of not less than $50 nor more than $1,000 might be imposed.

Plans are being drawn for the **J. K. Dering Coal Co.**, of Chicago, for the construction and equipment of a **coal washery** at Clinton. The building will be one story, 50 x 125 ft. and, together with its equipment, will cost approximately $50,000.

An ordinance for regulation of retail coal sales in Anderson, will be introduced in the City Council there. The measure, if passed, will require that dealers supply each purchaser of coal with a duplicate check as to the gross, net and tare weight and the name of the quality or grade of coal sold, and by whom sold or weighed. It further is provided that a license fee be required and that the fees be applied to the salary of the inspector of weights and measures.

The Bicknell Coal Sales Co., of Indianapolis, has filled a final certificate of dissolution with the Secretary of State.

The Knox Region Coal Mining Co. has been organized at Indianapolis with a capital stock of $450,000 for the purpose of mining and distributing coal. The organizers are W. P. Worth, H. A. Huskey, Carl J. Fletcher, H. H. Taylor, E. A. Ogle, Burrell Wright and C. H. Hassmann. All the organizers are well known in the Indiana field.

IOWA

Coal in a 2-ft. vein has been discovered at Spickard at a depth of 145 ft. A mine will be opened on the Austin farm, one and a half miles northeast of Spickard. The site of the mine is a gully with hills on either side. A much thicker vein is expected to be uncovered when the entries are run from the shaft. It is reported that a thicker vein is located 50 ft. further down.

Federal Judge George C. Scott has issued an order **restraining the receiver of the Cedar Rapids Ice & Coal Co.** from selling the company's property. This action prevented the sale of the property Dec. 20. The order issued by Judge Scott is temporary. A hearing was held Dec. 20 at Waterloo. The Cedar Rapids Ice & Coal Co. became an involuntary bankrupt last autumn and Oct. 16 a receiver was appointed. The proposed sale Dec. 20 had been planned because the state court of Iowa, the body which appointed the receiver, had sanctioned the proposed plan.

KANSAS

The Spencer-Newlands Coal Co. is experimenting in opening a 20-in. seam west of Mulberry with special stripping equipment. In the past working these seams in this country has not been equipment. If the new method is profitable it will be followed by other firms and thousands of acres in Crawford County will furnish years of additional mining operations.

KENTUCKY

The Big Four Coal Co., of Candill, whose post office address is Hammond, has been purchased by W. J. Raybold and others of Whitesburg, who will increase the capacity of the plant and lease and develop additional properties.

The Big Seam Coal Co. has been incorporated at Creeck, with a capital stock of $45,000, and with C. H. Lewis, J. D. Yarbrough and McKinley York as the incorporators.

The Gorman-Meguire Coal Co., of Jeff, has announced that it will make some extensive improvements on its property, including the erection of a new tipple.

A. C. Craft, Jr., and **Tilden Wright** have leased coal lands at Millstone, Ky., and will develop the same.

New Kentucky corporations include: **Big Six Coal Co.**, Livingston, $10,000; R. F. Quinn, John Cockrell and A. Richardson. **Clear Fork Coal Co.**, Middlesboro, $150,000; S. M. Reams, B. T. Milan and T. G. Anderson. **Dixie Land & Improvement Co.**, Stearns; $5,100; A. F. Wheeldon, R. W. Henderson and Mark Gibbs.

The Laib Co., Inc., Louisville, manufacturers of plumbing, heating, mine and mill supplies, has filed a petition providing for an increase in capitalization from $150,000 to $900,000.

Recent charters filed by new coal companies are: **Black Raven Coal Co.**, Louisville; capital $100,000; W. J. Borris, Arthur N. Sager, E. L. Williams, and K. U. Meguire; to enlarge production of the Gorman mines in the Hazard field. **Paint Cliff Mines Co.**, Louisville, operating in eastern Kentucky, amended articles increasing capital from $50,000 to $75,000; signers, K. U. Meguire, Sol S. Smith and A. C. Van Winkle. **Wallins Creek Coal Co.**, $100,000, from $50,000, Louisville; mines at Wallins Creek, eastern Kentucky; T. L. Young, L. H. Stone and J. S. Laurent. **Phoenix Fuel Co.**, Louisville, jobbers; amended articles increasing capital from $10,000 to $25,000; Frank J. and R. A. Ambach, S. D. McLaren and W. B. Talbot. **Providence Coal Mining Co.**, Webster (western Kentucky); increasing capital from $250,000 to $500,000.

Gus Noffsinger, general manager of the Southland Coal Co., was found dead at his garage door at Henderson, Dec. 31. A coal miner's hammer lying about 60 ft. away was the most important clue uncovered in the investigation of his death. Noffsinger was believed to have been killed instantly by a blow on the back of the head. An analysis of stains on the hammer to determine whether they were caused by blood was ordered.

That Noffsinger was struck down by a disgruntled former workman was the most plausible theory, according to investigators. Noffsinger last was seen alive when he started home after a conference at a local hotel with Edward Potter of Nashville, Tenn., president of the Southland company. He was a native of Central City and is survived by his widow and one child.

MASSACHUSETTS

Foreign coal landed in Boston Harbor in 1922 totaled 1,527,172 tons, the first shipment having been received June 27, when 3,707 tons of Hastings unscreened coal was brought in from Wales. There were 234 boats used in bringing this coal, the average cargo for the entire period being 6,526 tons. Shipments reached their peak in September, when 476,249 tons were received. During December the receipts were 139,728 tons. The heavy receipts have involved heavy demurrage charges, which in some instances undoubtedly caused a loss rather than a profit on a number of the cargoes.

MINNESOTA

The Stott Briquetts Co. of Superior, Wis., recently had as its guests the officers and sales force of the Northwestern Fuel Co. at a dinner held at the Minnesota Club, St. Paul, Minn. The Northwestern is the sales agency for the Stott concern.

The new 12,000-ton steamer of the Kinsman Transportation Co., now building at the yards of the Toledo Shipbuilding Co., will be named the "Wonell Clarkson," after the president of the Clarkson Coal & Dock Co., of Duluth and Ashland, Wis. The steamer will be put in commission April 15, 1923.

MISSOURI

The Polar Wave Ice & Fuel Co., at St. Louis has by a stock dividend increased its capital from $1,800,000 to $5,400,000. This represents the surplus for a few years past, which has been transferred to capital account. This is a retail coal and ice firm. **The Romann & Bush Pig Iron & Coke Co.** increased its capital from $20,000 to $70,000.

NEW YORK

William H. Woodin, who resigned as State Fuel Administrator, effective Jan. 1, continued to perform the duties of the office last week in the absence of word from Governor Smith as to the appointment of his successor. Commenting on a report that General George W. Goethals was being considered for the post, Mr. Woodin said he thought General Goethals would be "an ideal man for the post." General Goethals said he knew nothing about the report except what he had seen in the newspapers, and would not comment upon it.

Acting on reports received from the Police and Health departments William H. Woodin, State Fuel Administrator, on Jan. 6 **ordered the immediate distribution of 6,000 tons of coal to residents of Brooklyn and Queens** who are without fuel, although able to pay for it. He sent a communication to E. W. Parker, National Director of Fuel Distribution in Philadelphia, urging preference for coal shipments to this district because of the emergency that has arisen.

E. J. Berwind, president of the Berwind-White Coal Mining Co. has declined to make any comment or statement concerning the charges contained in the report of Mayor Hylan's committee that investigated labor conditions at the Berwind-White mines in Pennsylvania.

OHIO

William T. Latta, for years engaged in the coal business in Indianapolis, died recently in Seattle, where he had gone three years ago. The body was taken to Indianapolis for burial. Interment was in Eagle Creek cemetery near Zionsville, Ind.

John Marchesi, a New Philadelphia operator, has purchased three mines and a considerable coal acreage from the Scott Coal Co., at Midvale. The seller reserved a retail coal yard in Akron which will be operated by John Scott, principal stockholder in the Scott Coal Co. The capacity of the mines is about 800 tons daily.

The Monarch Coal Co., chartered some time ago at Columbus, with a capital of $30,000, by E. E. Learned, L. M. Buchannan, E. Gilbert, Ray Cheek and R. H. Learned, is negotiating for the sale of a mine in the West Virginia field which may soon change hands.

PENNSYLVANIA

The Pittsburgh Coal Co. has resumed dividend payments on the common stock at the rate of $4 a share annually, by the declaration of a quarterly dividend of $1 a share. Only three months ago, much to the surprise of stockholders, the directors passed the quarterly dividend, which then amounted to $1.25 a share. The dividend now declared is payable Jan. 25 to stock of record Jan. 5.

The Pennsylvania system of mine inspection has been the model for many states and foreign countries, Governor Sproul told the Legislature when it convened Jan. 2. He made his final message to the Legislature, part of which he read in person. Statistics and details of the departments he presented in printed form to the members. Speaking of the mine-cave situation and the decision of the U. S. Supreme Court, holding the mine-cave legislation unconstitutional, the Governor said that a way to meet the question should be devised. The right of the public to appropriate by eminent domain with compensation to the miner's hammer lying about 60 ft. away he pointed out.

The modified plan of the **Lehigh Valley R.R. for the segregation of its coal properties** has been submitted to Attorney General Daugherty and it is expected that a decision on the matter will be forthcoming in about a month. The Lehigh Valley's plan for the segregation of its coal properties, announced Oct. 7, 1921, was in accordance with the United States Supreme Court's decision of Dec. 6, 1920. The plan was filed in the United States District Court of the Southern District of New York, and at the same time the government filed three objections. Representatives of both parties have been at work since in an effort to come to an agreement on a modified plan, which it is understood has been accomplished in a series of conferences between representatives of the railroad and the Attorney General's office.

One hundred and twenty of the executive, sales and operating personnel of the **Bertha Coal Co.,** Pittsburgh, met in the company offices, Dec. 30, to outline plans for 1923. Following a meeting of the sales department with C. F. Ingold, vice-president and sales manager, and a meeting of the operating department with John H. Jones, president of the company, the entire personnel of the company took luncheon with the Board of Directors at the Chamber of Commerce. Among the various resident managers of the company present were: George N. Reed, New York; Horton J. Davis, Corry, Pa.; T. P. Jones, Cleveland; H. A. Thompson, Covington, Ky.; Vaughn J. Jolliff, Detroit; H. L. North, Akron, and C. S. Gilmore, Grand Rapids, Mich.

TEXAS

The property of the **Anderson County Coal Co.** six miles west of Palestine has been sold to the **Ligol Chemical Co.,** of Houston. The property will continue operations but new machinery is being installed for the manufacture of byproducts, especially carbon. This lignite coal is of a peculiar quality for byproduct purposes. The Ligol Co. has another mine in Grimes County and a byproduct refining plant at Houston. J. J. Barry is in charge of the property here.

UTAH

The Columbia Steel Corporation has sent out inquiries for byproduct coke ovens and auxiliary equipment for a proposed installation.

Wm. D. MacLean, general sales agent of the Standard Coal Co., Salt Lake City, for several years, has been elected vice president of the company. He is one of the best known coal men in the mountain country.

VIRGINIA

Argument has been completed in the Norfolk Circuit Court in the case of the **Norfolk & Western against the Pan-Handle Coal Co.,** growing out of the controversy which arose early last year over the manner in which demurrage charges had been assessed at the Lamberts Point Coal Exchange. The railroad claims the coal company in this case owes $3,200 and the company claims it has overpaid by $1,000. The original case was filed by the members of the exchange who constituted the Hampton Roads Demurrage Committee, of which W. W. Houston, manager of the Pan-Handle Coal Co. at Norfolk, was chairman. The committee asked the Interstate Commerce Commission to investigate the manner in which demurrage was assessed and asked the Circuit Court to restrain the railroad from collecting demurrage charges under the system of assessment it had employed. The court decided against the coal companies, as did the Virginia Supreme Court of Appeals. The case has not been decided in the Interstate Commerce Commission. Judge Hanckel in the Circuit Court has given the attorneys for the Norfolk & Western twenty days in which to file a brief, and has given the coal company's attorneys ten days additional to file their reply.

WEST VIRGINIA

W. P. Beveridge, of Wichita, Kan., purchased a coal mine at Lillian, and is arranging **to operate it on a co-operate basis.** He has chartered the concern as the Beveridge Co-operative Coal Co., of which he retains 50 per cent of the stock, while the coal miners are to own the other half. The men are to work for $6 a day and every three months the profits are to be divided on a 50-50 basis. The plant will be operated on a non-union basis and none but stockholders will be employed. It has a capacity of 200 tons daily.

A. J. Dalton, of Omar, Logan County, and associates have obtained a certificate of incorporation for the Main Island Coal Corporation, representing holdings of more than 28,000 acres of valuable coal lands in Logan County and with an authorized capitalization of $25,000,000. It was formed by the consolidation of the Main Island Creek Coal Co., Omar Coal Co. and Middleport Coal Co. all operating in Logan County.

J. W. Smith, secretary-treasurer of the Raleigh and Wyoming County Mining Institute, has taken a position with the **Algonquin Coal Co.,** Algonquin. He was previously employed by the Coal River Collieries Co.

On Jan. 16 the Main Island Creek Coal Co. will open its Y. M. C. A. at Stirrat, which the company has erected for the benefit of its employees at a cost of approximately $200,000. Employees and their friends are invited to attend the opening, beginning at 2 P. M. There will be a free picture show, dancing and refreshments.

The Weyanoke Coal & Coke Co. and the S. J. Patterson Pocahontas Co. have been consolidated as of Jan. 1, 1923, as **The Weyanoke Coal & Coke Co.,** capitalization of which has been increased to $1,000,000. Both of these companies are in close proximity, mining the third-vein Pocahontas seam at Springton, and were owned by practically the same interests. R. D. Patterson, of Dayton, Ohio, being president of both companies, and the S. J. Patterson Co. of Dayton, Ohio, exclusive sales agents for the entire production of these mines. The S. J. Patterson Co. of Dayton, Ohio, maintaining a Chicago office in the Old Colony Building and represented by the J. W. Lowe Co. in New York, will continue to market the product of these mines.

S. W. Riddle, of Chattanooga, accompanied by Clyde Palmer, manager of the Cincinnati office, were on a two weeks visit to the Blue Star mines of the Riddle corporation. R. O. Farrell of the Chattanooga office has been transferred to Cincinnati and H. R. Bonnell, formerly with Jewett, Bigelo and Brooks, has also joined the Riddle forces.

Recent visitors to Cincinnati were **Lawrence Snapp,** president of the United Fuel & Iron Co., of Pittsburgh, who was on his way to his mining properties at Darby and St. Charles, Va.; **J. R. Charlton,** of the West Virginia-Elkhorn Coal Co., of Boncar, W. Va., and **W. G. Chelf,** an operator of East Bernstadt, Ky.

WYOMING

Heavy snows has stopped work on surface plant of the **M. H. Shields Coal Co.,** six miles from Gillette, Wyo. The vein is 96 ft. thick and the top of the seam is under 20 ft. of cover. Drift mining must be employed, as the vein runs under a hilly rise. M. H. Shields is president and Thomas Hotchkiss is general manager.

CANADA

The Cape Breton collieries will be so active during the winter that some of them will be placed on double shift.

J. B. McLachlan, secretary of District 26, of the United Mine Workers, **demands that the workers take over operation of the bituminous-coal mines** of eastern Canada. Further, he has announced publicly that he is strongly in favor of a communist government for Canada and will fight tooth and nail for such a government.

The U. M. W. called an **open meeting at Glace Bay to discuss the soft-coal mining situation.** The principal speaker was Trover McGuire, of Toronto, who was recently arrested for alleged treasonable utterances and sedition but was liberated because of his meritorious war record, he having won the distinguished conduct medal while in action with the Canadian Expeditionary Force in France and Flanders. McGuire urged the members of the U. M. W. in District 26 to rebel and take over the mines by force.

The Rev. J. J. Nolan, Roman Catholic priest, and **the Rev. A. Bull,** Church of England minister, of Leading Tickle, Newfoundland, **discovered a seam of coal** recently and staked it on behalf of their respective churches, which are co-operating in sinking a shaft and installing other equipment.

During the British Columbia legislative session, which has just closed, **an effort was made to amend the Coal Mines Regulation Act** in order that coal miners might appoint representatives on gas committees other than from their own number. They wanted the privilege of nominating outside men. The majority of members of the House, however, held that such latitude might lead to abuses that would seriously affect the industry and the amendment was defeated. In the debate attention was drawn to the serious results of the large importations of fuel oil into the province from the United States. It was said that 90,000 tons of British Columbia coal per month was being driven from the local markets. Local coal was unable to meet the competition. One large mine already had **been closed down on Vancouver Island** and the time had arrived for the Dominion to impose a heavier duty on fuel oil coming from outside in order that the provincial coal industry might be saved.

R. M. Macdonald, of Blairmore, has been elected international board member of District 18, United Mine Workers of America, comprising southeastern British Columbia and Alberta. He succeeds Robert Livett. **William A. Sherman** has been re-elected president by acclamation and **William Ryan,** vice-president, and **Robert Peacock,** secretary-treasurer, were returned to office.

The British Empire Steel Corporation is devoting much attention to meeting the demand for coal of a good quality. The method of undercutting the coal has been changed in several of the collieries to insure large and clean coal. The transportation, cleaning, absorbing and screening processes also are being improved.

Charles Murphy, general manager of the western lines of the Canadian Pacific Ry., states that at present 75 per cent of the coal used in Winnipeg comes from Alberta. **All the Western mines are now working** except some in the Edmonton district, where there is a strike of small proportions. As most of the coal supply comes from Drumhellor and Lethbridge, the strike is an inconsiderable factor of the situation. In order to further encourage the use of Alberta coal in Manitoba and at other **Eastern points the Calgary Board of Trade** and the Western Canada Coal Operators' Association have decided to continue the campaign begun with this object. Letters will be sent to Manitoba merchants, clubs and societies asking for support of the effort being made to develop the coal trade within the Dominion.

International Fuel Co., Ltd., of Toronto, has been incorporated with $40,000 capital stock. The provisional directors are Gerald M. Malone, Albert Mearns and Gertrude Wallis.

Twenty candidates sat for examinations conducted recently at Nanaimo, Fernie, Merritt and Cumberland, B. C., by the Board of Examiners appointed under the Coal Mines Regulation Act. They wrote for first-, second- and third-class certificates, although the majority took papers of the two latter classes. Of the twenty who offered, ten were successful, and the board in its report observes that most of the candidates for second-class and a few of those for third-class certificates possessed a knowledge of mining matters and gave proof of a general education considerably above those usually manifested by aspirants for these certificates.

WASHINGTON, D. C.

The Secretary of the Interior has requested a deficiency appropriation of **$10,000 to cover the expense of administering the Leasing Act as it applies to coal.** Coal development on the public lands is proceeding faster than had been anticipated. On June 1 **there were 240,000 acres of potential coal** lands under lease. On Oct. 1 the total had **grown to 340,000 acres. The 500,000 acre** mark was reached on Nov. 8. To meet this situation, the Bureau of Mines, which is charged with the administration of the Leasing Act, has been forced to take men from its other work and to borrow personnel from the Land Office.

Obituary

A. I. Dexter, age 76, one of the pioneer industrial men of the district and a director in the Bessemer Coal, Iron & Land Company, died at Birmingham, Ala. Jan. 1. Mr. Dexter moved to this district in 1896 from Whitewater, Wis., and was actively interested in the development of coal and iron properties for a number of years following. He was born in West Topsham, Vt., but interment took place at Whitewater, Wis.

Traffic News

In the Dec. 14 issue of "Coal Age" a news item stated that "An effort to increase the first zone coal freight rate was resisted by northern West Virginia coal shippers when that question came up for a hearing before representatives of the Interstate Commerce Commission on Dec. 4 in connection with the case of the Pittsburgh Coal Co. against the P. C. C. & St. L." This was an error, as the Pittsburgh Coal Co. was not a party to the case. The plaintiff was the **Pittsburgh Coal Producers' Association.**

The I. C. C. has assigned for hearing in Washington Feb. 15 and 16 the **Western coal-rate case.**

The Missouri Pacific R.R. has issued Circular Letter No. 299-A, urging shippers to make the best possible use of equipment, so that the greatest number of people may be served, and as many lines of business as possible be kept in operation. The following suggestions are offered: (1) Load cars to their full carrying capacity; (2) unload cars promptly; (3) reconsignment requests should be placed promptly.

The attention of the Interstate Commerce Commission has been called to the **poor showing being made by the Chesapeake & Ohio** in the movement of coal in other than private cars. It is alleged that coal in privately owned cars is being dispatched promptly at the expense of coal in cars of railroad ownership. It is declared that 80 per cent of C. & O. system coal cars are on its line, but that coal mines are not being supplied with the maximum possible number of cars, due to the fact that they are held for unnecessary periods under load.

Oral argument on the complaint brought by the **Southern Ohio Coal Exchange against railroads serving the southern Ohio field,** as to differentials on freight rates betwen Ohio and the so-called inner and outer crescents of West Virginia, will be heard by the I. C. C. Jan 23. In the report of the special examiner named to take evidence the contestations of the defendant roads were upheld. This report is only tentative and must be approved by the I. C. C. before it is effective.

An investigation of the shortage of coal cars in Kansas was started by the Kansas State Public Utilities Commission Jan. 3, with a hearing at Pittsburg. The investigation is inspired by complaints of dealers and consumers of delayed deliveries. The most recent was by the firm that supplies state institutions with coal, which attributed slow deliveries to lack of cars.

G. C. Randall has been appointed district manager of the Car Service Division American Railway Association, with headquarters at Dallas, Texas, effective Jan. 1, 1923. Mr. Randall will have the authority of the Car Service Division in the states of Texas, New Mexico, Oklahoma, Colorado, Louisiana and Arkansas and other outlying points as may be directed.

The Illinois Central is ready to buy and build a new line 125 miles long between Edgewood and Paducah, Ky., cutting down the distance between Chicago and Memphis by 22 miles. It will cost approximately $1,500,000. The Illinois Central is buying the Kentucky Midland R.R., whose line supplies about 100 miles of the route.

Trade Literature

General Electric Catalog No. 6001. General Electric Co., Schenectady, N. Y. Pp. 1338; 8 x 10 in.; illustrated. General catalog of all products of this company for year 1921. This book contains a wealth of information.

Association Activities

New River Operators' Association

S. A. Scott, in charge of the operations of the New River Company in the Fayette and Raleigh fields, was chosen to succeed himself as president of the New River Operators Association at the annual meeting of the association held at White Sulphur Springs. T. L. Lewis was once again chosen as secretary of the association. Mr. Lewis was at one time president of the international organization of the United Mine Workers of America, succeeding the late John Mitchell in that capacity. His headquarters are at Charleston. After members of the association had completed a review of the year's activities and the usual annual reports had been submitted, they enjoyed a banquet at which C. W. Dillon, of Fayetteville, was the toastmaster.

Northern West Virginia Coal Operators' Association

Representatives of the association held a conference late in December on car supply and other transportation questions with Daniel Willard, president of the B. & O., and other executives of the road. Secretary George S. Bracket, speaking for the association, pointed out that the business of the coal producer on the line of the B. & O. has suffered, that the tonnage of northern West Virginia is not claiming its share of the national production and that the road is not maintaining its share of the traffic within northern West Virginia territory. Mr. Bracket also pointed out that shippers on the Baltimore & Ohio never had had reasonably constant service and had never been able to go into the market and sell their coal and offer to their customers this essential factor in the industry. The association asked for adequate car service. In replying to the complaint of the operators, Mr. Willard said that the road was having a number of cars repaired and that with those purchased there would be available by April 1 about 12,000 empties. He thought an excellent plan would be to have a special committee of the association appointed to confer with officials of the road in northern West Virginia.

Chicago Wholesale Coal Shipper's Association

The annual meeting of the association was held at the Great Northern Hotel Jan. 3. After luncheon the officers and the chairmen of special committees reported the activities of the association during the last year. The following officers and directors were elected to serve during the ensuing year: President, Wm. C. Hill; vice-president, Chas. M. Moderwell; secretary, Geo. H. Merryweather; treasurer, Geo. S. Wood; directors, Chas. L. Dering, Lewis Overholt, Thos. C. Irwin, Fred A. Brahm, Chas. E. Hostler, Leon Romanski and Roscoe B. Starek.

Clarksburg Coal Club

At the last meeting of the Clarksburg Coal Club at the Waldo Hotel, at Clarksburg, W. Va., car shortage, the labor situation and general conditions in the industry were the topics of discussion. The club also discussed the proposed visit of Vice President C. W. Galloway and other officials of the Baltimore & Ohio to the region. It was the consensus of opinion among those at the meeting that the car shortage is worse now than at any time in recent months, as some mines have only 15 per cent or 20 per cent car supply, although the assigned car supply is good.

Coming Meetings

American Engineering Council will hold its annual meeting Jan. 11 and 12 at the headquarters of the Federated American Engineering Societies, 24 Jackson Place, Washington, D. C.

Northeast Kentucky Coal Association will hold its annual meeting Jan. 23, 1923, at the Ventura Hotel, Ashland, Ky. Secretary, C. J. Neekamp, Ashland, Ky.

Northern West Virginia Coal Operators' Association will meet Feb. 13 at Fairmont, W. Va. Secretary, G. S. Brackett, Fairmont, W. Va.

American Institute of Mining and Metallurgical Engineers will hold its annual meeting Feb. 19-22, 1923, at the Engineering Societies Building, New York City. Secretary, F. F. Sharpless, New York City.

Engineers' Society of Western Pennsylvania will hold its annual banquet Monday evening, Jan. 22, 1923, at Pittsburgh, Pa. Secretary, K. F. Treschow, Pittsburgh, Pa.

Hazard Coal Operators' Exchange will meet on Jan. 12, 1923, at the Phoenix Hotel, Lexington, Ky. Secretary, R. A. Hord, Lexington, Ky.